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ILLUSTRATIONS.

Decorative Painting, Red Cross Hall, Southwark.—Designed by Mr. Walter Crane ..... *Double-Page Ink-Photo.*
Barfrestone Church, Kent: Details.—Drawn by Mr. Alan C. Walker ..... *Four Single-Page Photo-Litho's.*
Stake Farm, near Sevenoaks, Kent.—Mr. F. M. Simpson, Architect ..... *Single-Page Ink-Photo.*
Gamekeeper's Lodge, Sidbury, Sidmouth.—Mr. Walter F. Cave, Architect ..... *Single-Page Ink-Photo.*

Blocks in Text.

Specimens of Ornamental Work ..... Page 439 | Plan of Barfrestone Church, Kent ..... Page 443

CONTENTS.

From Athens 433
Notes 434
Letter from Paris 436
Royal Institute of British Architects: "Sassanian Architecture" 437
Some Specimens of Ornamental Work 439
Arts and Artists in Former Times and To-day 439
Decorative Painting, Red Cross Hall, Southwark 443
Barfrestone Church, Kent 443
Stake Farm, near Sevenoaks 443
Gamekeeper's Cottage, Sidbury 443
The Architectural Association 443
Workmen's Accident Insurance in Sweden 444
Competitions 445
Architectural Societies 445
The London County Council 445
Builders' Benevolent Institution 445
Robert Boyle & Son, Limited 445
Books: Stephenson's "Estimating" and "Repairs" (Batsford); Jones's "Asbestos" (Crosby Lockwood); "The Architect's Valuator and Directory of Architects belonging to Institutes and Associations in the United Kingdom" (Osborn, Manchester) 446
Brick-burning 447
Messrs. Flockton & Gibbs's Patent 447
Bridge Chapels 447
The Student's Column: Hot Water Supply.—XXIII. 447
Obituary 448
General Building News 448
Sanitary and Engineering News 449
Stained Glass and Decoration 449
Foreign and Colonial 449
Miscellaneous 449
Competition, Contracts, and Public Appointments 450
Meetings 450
Recent Patents 451
Some Recent Sales of Property 451
Prices Current of Materials 451
Tenders 453

From Athens.

THE work of preserving the Byzantine mosaics in the church at Daphne, near Athens, is now well in hand. Towards the middle of summer Messrs. Salviati & Co., of Venice, at the request of the Greek Government, sent a competent craftsman to undertake the task of removing the damaged mosaics in the dome, with a view to refixing them in their places when the structure had been made thoroughly secure. A grant of ten thousand drachmas was voted by the Chamber towards the cost of this work. The idea of taking these mosaics to Athens and permanently exhibiting them in the museum there has, we are glad to say, been abandoned, and, acting under the advice of Dr. Dörpfeld, the Director of the German Institute, himself a practical architect, and of a committee of competent persons appointed to confer on the subject, the dome, which is cracked in many places, and quite unsafe, will be taken down and rebuilt on the same lines, and the mosaics refixed exactly in their old places, without being restored in any way. A light iron gallery will be constructed round the dome at the level of the string-course, in order to enable students to get close enough to study their technique. Access to this gallery will be obtained from the later bell-tower on the north side.

The mosaics in question consist of figures, a little over life-size, of sixteen prophets, which have been placed between the windows, and of the large bust of Christ, which here, as in all Byzantine churches of this period, occupies the centre of the dome. This bust of Christ is enclosed in a circle, the outer diameter of which is 15 ft., and the length of the head alone, measured to the point of the beard, is 6 ft. 6 in. The prophets have been very much damaged, and the greater part of some of them is completely gone, whereas the central Christ is almost entire, one corner only having disappeared, but the eyes have been obliterated by the bullets of the Turkish soldiery who, during their occupation of the monastery at the time of the Greek Revolution, amused themselves by using this head as a target for rifle shots. These soldiers also contributed to spoiling many of the other mosaics by lighting fires in the church, under a mistaken impression as to the nature of the gold cubes, and with the idea that the heat would melt the gold, and make it drop down.

Between the Christ in the centre and the prophets at the sides extends a large field of plain gold cubes which is now being removed in large squares. The Christ will be taken down in one piece and each prophet removed separately. The method employed is to cover the face of the mosaic with a thin coat of plaster of Paris, and on this is glued a stout sheet of canvas. The piece is then gradually detached from the wall by cutting it away from its bedding, and resting it on a wooden frame or stretcher, which is made exactly to fit, and on which it remains, after the whole of the plaster has been cleared away from the back of the cubes, till the wall is ready to receive it again. A new fresh wet cement groundwork will then be prepared on the wall, the frame to which the mosaic is fixed will be pressed firmly on to it, so as to let the cement get well into the joints between each cube; it will be left to set hard, and, the frame and coating having been removed, the mosaic picture will be once more exposed, firmly fixed on to the new wall.

No attempt will be made to restore the mosaic, even parts which have gone where the accurate completion of the subject is quite obvious; but it will be possible, provided a good man is employed, to complete in fresco what is wanting in mosaic, and so obtain a better idea of the original *tout ensemble* of the scheme, but this will have to be done very carefully, otherwise it is sure to detract from, rather than add to, the general effect of the whole.

The other mosaics in the church, which are in a more or less insecure state, will also be attended to, and so we may hope to have preserved, for some considerable time, this valuable series of Byzantine mosaics, of probably twelfth-century date, which otherwise would have disappeared in a few years through inattention and neglect.

We may add that the British School at Athens have been fortunate in securing a number of coloured drawings of the most interesting of these mosaics, made before they were disturbed, and these will form an important item in their series of drawings of the Byzantine architecture of Greece.

The British School is again at work at Megalopolis on the site of the ancient city. These excavations, which were started last spring, were discontinued during the hot months of summer. Operations have, in the meantime, been suspended at the theatre, and attention is at present being directed to the stretch of level ground on the north side of the river Helisson, where the first digging took place in the spring, and which then had to be postponed owing to the disturbance of the standing crops. On account of the continuous and heavy rains very little has yet been done, but the long stoa lying some distance in from the banks of the river, and running east and west, parallel with it, has been uncovered over its whole length, a distance of 500 ft. It has had two rows of columns, the inner ones Ionic and the outer Doric; but only the foundation-stones of the columns are *in situ*, and one or two of the Ionic bases, and two or three courses of the back enclosing wall. Portions of the columns are, however, lying scattered about, but no capitals have yet been unearthed. In the length of the back wall there are two flat recesses, or exedræ, separated from the stoa by triple openings, which in one case has double columns between each bay. This stoa is in all probability the one alluded to by Pausanias as the stoa of Philippios, and which he describes as running along the north side of the Agora.

With regard to the theatre, the General Ephor of Antiquities has stipulated that the entire area of the orchestra and the seats, where in position, shall be completely excavated. Probably few additional facts will be gained from this work, which, on account of the depth of soil to be removed and the distance to which it will have to be taken, will entail a considerable amount of labour and consequent outlay, but it will ensure permanency to what has already been done, and make the general scheme of the theatre apparent to all. Satisfactory arrangements have now been concluded between the School and the Government, which will enable this work to be undertaken in the spring, and it will, when finished, permanently identify the

British School at Athens with the complete excavation of the site of the largest theatre in Greece.

There are prospects that the excavation of Delphi will, after all, be undertaken by the French School. We believe that it has already got a concession from the Greek Government, but the vote of the necessary grant of money to buy up the present village of Castri, which covers the site, has still to pass through the French Chamber. Meanwhile, the recent heavy rains have washed away several of the houses in the village, but doubtless the inhabitants will rebuild them at once in order to secure their rights to compensation when the work goes on.

The German Institute is going to undertake excavations at Magnesia, in Asia Minor. They will be under the immediate charge of Dr. Humann, and Dr. Dörpfeld will visit them at intervals.

Drs. Schliemann and Dörpfeld were at Hissarlik most of the summer. The results of their work have not been published yet, but we understand the topographical researches have been satisfactory, although no important objects have been found.

The Greek Archæological Society are excavating on a site to the west of the Tower of the Winds, and between it and the Roman Agora Gate. They have unearthed a large stoa of Roman times, with plain pillars of the Ionic order, raised two steps above a paved court, which has an open water-channel running round it.* On the south side the stoa is double, and eleven bays are already visible towards the central court. Next the Tower of the Winds the stoa is single, and only about half of it is yet excavated. In the centre of this side is the Propylæa, with three doors, the cills of which are raised three steps above the level of the stoa. These steps are very much worn, and have been roughly repaired at a later period. On the excavated side of the Propylæa are four small chambers opening on to the stoa, and somewhat similar to those in the Stoa of Hadrian close by. If the Propylæa is situated in the centre of the east side, as one would naturally suppose, there will be eleven bays towards the court on this side also. On the stylobate, between two columns on the south side, are four hemispherical sinkings in the stone. Three of these are of progressive sizes, and the fourth is similar to the largest of the three. They were probably measures of some description. The work of excavation is still being proceeded with.

In the Ceramicus, outside the Dipylon Gate, where the Archæological Society are also digging, some new funeral reliefs have been discovered. Negotiations are still in progress between the Ecclesiastical Synod and the Society regarding the removal of the small church of the Holy Trinity, the existence of which has interrupted the excavations on a portion of the site. This church is not old, and it contains nothing of sufficient interest to warrant its preservation.

The two statues found during the recent excavations by the Government authorities at Rhamnus, in Attica, have been set up in the vestibule of the National Museum at Athens. The one is a female figure of over life-size, and of fourth-century (B.C.) workmanship. It may be a statue of Nemesis, and is by a hitherto-unknown artist, possibly a local man. The other, also a female figure, and probably a portrait, is smaller, and of the Hellenistic period. Neither of them are of great artistic merit or importance, but are interesting because they have been found with their original bases, on which are inscribed the dedicatory inscriptions. The base of the larger one is a shallow square block, with the usual small single moulding of the time running round the top and bottom, and it rests on a lower plain block of somewhat larger dimensions. The base of the smaller statue is a simple square stone, without mouldings of any kind. In both cases the statues have a solid piece of marble under the feet, which is let in to a sinking in the base stone.

Excavations have meanwhile been discontinued at Rhamnus, but they will be resumed in the spring, when the sacred way leading to the sea will be examined.

Steady progress has been made during the summer with the arrangement of the National Museum. Two of the large heads and a portion of the sculptured drapery of one of the figures belonging to the lately found temple statues have been brought from Lykosoura in Arcadia, and are now on view in one of the galleries. One of the magnificent Corinthian capitals of the fourth century (B.C.) from the interior of the Tholos of Polykleitos at Epidauros, and perhaps the finest of all the types of this order, has been brought from the local museum at the site, and set up beside the other sculptures from that place.

The numerous marbles of various kinds which were stored in the vaults at the Varvakeion, where was formerly the museum of the Archeological Society, have now been removed to the National Museum and are being incorporated with the collections there.

The sculpture galleries are being rearranged and many additional objects exposed to view. There is, however, a danger of overcrowding the walls, especially in the hall of later sculpture, which contains many interesting examples of the later Greek and Roman times. Here indifferent Roman busts are being posted about on brackets all over the walls. They had far better be consigned to an obscure position in some subsidiary gallery or corridor, where they would not interfere with other and more important things, and where they could be consulted by those who have need to do so.

The great hall of the funereal stelæ is now in complete and permanent order, and three more rooms devoted to additional examples of these will shortly be opened, thus making this collection the finest and most extensive of its kind in existence.

A large number of bronzes and terra cottas have been arranged in two rooms in the right wing of the Museum, and they will before long be also open to public inspection.

Great credit is due to M. Kavvadias, the General Director of Antiquities, and to his assistants, for the untiring energy with which they are devoting themselves to the arduous task of arranging such a vast collection, which is increasing day by day by the addition of new finds from all parts of Greece.

* These were referred to and partially illustrated in a letter from Professor Aitchison published in this journal a fortnight since.

NOTES.

In the current number of the *Nineteenth Century* Mr. Frederic Harrison makes what may be called an impassioned appeal for the restoration of the Elgin Marbles to Greece. He does not propose that they should be placed *in situ* on the Parthenon again, which would be in fact impossible, but that they should be placed in a museum at Athens so as to be seen in close contiguity, at all events, with the building to which they belonged. This idea, we know, has been mooted frequently of late years in this country, though not publicly; and under present circumstances there is no doubt a good deal to be said for it. Athens, as Mr. Harrison says, is now a more central archæological school than London; the Athenian atmosphere is no doubt more favourable to their preservation than that of London (if London can be said to have an atmosphere), and no doubt also the Greeks of the present day do value these great records of their past. But there are considerations on the other side which Mr. Harrison entirely ignores. No doubt, if any one at the present day were to pull down and carry off the sculptural work of any ancient architectural monument, there would be a hue and cry raised against him. But what were the circumstances at the time? No authority on the spot cared a rush for the marbles then. Isolated individuals may have done so (according to an instance quoted by Byron in the notes to "Childe Harold"), though from merely sentimental and patriotic reasons, and without any real knowledge of their artistic value. But at that time the sculptures of the Parthenon were in constant danger from wanton mischief. The Turkish soldiers, it was known, used the figures as marks for shooting at. Mr. Harrison asserts that Byron "did not say a word too much" in his poetic denunciations of Lord Elgin's proceedings. Byron said a great deal too much; he also was entirely ignorant of the artistic value of the sculptures, and careless of it; all he wanted was that, as a matter of sentiment, Athena's shrine should not be despoiled. *No one* knew their value till they were brought to London, when Fuseli and Haydon were chiefly instrumental in making it known. It is not too much to say that had the sculptures not been then brought to London, the enormous influence which a knowledge of them has exercised on modern sculpture and on our estimate of Greek art would never have come into existence at all. Before the time had arrived when all the educated world learned to take such deep interest in Greek art as it now takes, the sculptures would have suffered far more severely than they have already suffered. Whatever may be said as to the motives of Lord Elgin and the manner in which the "loot" was effected, the fact remains that he practically saved them, and that the English taught the world their value, which their then native possessors knew nothing of. All these considerations ought to be borne in mind in reference to any question of restoring them to Greece; and Mr. Harrison's appeal ignores them all.

The Mansion House United Association on Railway Rates seems to have an insatiable appetite for "returns." At their meeting last Friday a resolution was passed urging Parliament to require returns from the railway companies showing the rates charged for the conveyance of staple articles of merchandise, and the tonnage of the articles carried at these rates during 1889 between the most important trade centres in the United Kingdom. Seeing that a large proportion of these particular rates would be special ones, we really cannot see that any good purpose would be served were the returns obtained, as they could hardly be of any greater value in the determination of maximum charges than many of the tables of figures already submitted. The Board of Trade have a right to assume that in the course of the long inquiry that they held, the full state of the case was laid before them, and it is extremely doubtful whether they will advise Parliament to demand still further returns. Their own proposals, in spite of the opposition of the railway companies, do not appear to be acceptable to the Mansion House Association. At the meeting referred to it was resolved that in the opinion of that body the proposed classifications and schedules, if authorised, would enable railway companies to increase their charges upon merchandise. This resolution concludes by stating that the increase would be due to a large extent to the charges from station terminals, which the Association does not admit to be legal. Now, although we ourselves have never believed in the legality of these charges under the old law, it seems increasingly evident that Parliament has yielded the point, and that their legislation is now inevitable under the new system. Future effort, therefore, should be in the direction of securing the best possible terms; and, seeing that the Board of Trade have so curtailed the powers sought for by the railway companies as to cause the latter very grave apprehensions, the Board will probably be rather surprised at the attitude of the Association; for they conclude by stating that they are unable to accept the proposals of the Board as being just and reasonable, and will use every means in their power to prevent their authorisation in their present form by Parliament.

AT the meeting of the School Board for London last week the question of employing outside architects in the designing of schools was canvassed at great length. In reference to the difficulty of keeping pace with the demands, an important communication from the Board's Architect, Mr. Bailey, was read, which seems to show conclusively that in some cases at all events delay has arisen from causes outside of the architect's office. "I apprehend," wrote Mr. Bailey, "that my duty, as the Board's Architect, is to build the schools upon the sites acquired and definitely settled on; but until I receive from your land-surveyor a proper site plan, with levels, I am, as a matter of fact, unable to complete my plans." Mr. Bailey then went on to point out that in one case the question of building a school for 800, since increased to 1,000 (thus involving a new type of plan), had been in abeyance from January 1887 to October 1889, though the site had been in possession for years. In the case of four out of fifteen sites in possession, no numbers had yet been settled on, so that he was without instructions. One site is in abeyance, and for another he had no site plan. Mr. Sharp, in the course of discussion, moved that the Works Committee be instructed to have six new schools planned and built under the superintendence of three outside architects. An amendment by the Rev. Copeland Bowie, "that the Board adheres to its present practice of having schools planned by their own office staff," was ultimately carried by twenty-four to thirteen. In the course of the discussion it appeared that some members were of opinion that it was impossible and absurd to maintain their own Architect's department and employ outside architects as well. We do not see that it need be so. The Board's Architect would be in the position of a consulting architect and an authoritative referee as to whether the "outside" plans were satisfactory. There is no doubt a natural feeling that it would be a kind of confession of weakness to give up this system after having carried it out for so long; but the fact remains evident that the Board are putting upon their present Architect, as they did on his predecessor, more work than any one man can properly look after. There appears to have been an idea that school plans should have been duplicated in order to save labour, but Mr. Bailey remarks that the best type of school for duplicating has only recently been erected. We may observe on this head, what Mr. Bailey no doubt knows as well as we do, that duplicating a building for another site than that for which it was designed can never be really satisfactory, as every site has its own special conditions. The proposition is in itself a confession of the unsatisfactory character of the present system.

THE judgment of the Chancellor of Rochester in regard to the question of the peal of bells for St. Peter's, Deptford, is of some importance to those who are concerned in church building. It was claimed on behalf of the bells that the hanging of a peal was intended before the church was consecrated, and was only omitted because the funds for the purpose were not at the time forthcoming. The Chancellor set this aside on the ground that the then parishioners might, if they pleased, have approved the bells, or they might have petitioned the Bishop not to consecrate the church with the bells. He could not legislate in regard to what might have been done under circumstances which had not occurred. Going into the memorials which had been presented on both sides, he found that there were 821 houses in the parish, of which 41 appeared to be empty, and of the remaining 780 it appeared that 212 occupiers were in favour of the bells and 241 against them; the remainder either were neutral or it had not been possible to obtain their views. Taking the area within a furlong of the church, which would naturally be most directly affected by the bells, there appeared to be, out of 248 tenanted houses, 131 occupiers who were against the bells and only 55 in favour of them; while in the same area 44 persons, owners of long leases of 93 houses, objected to the bells as "calculated materially to lessen the value" of their property. Taking all these considerations into account, the Chancellor refused the faculty. The petitioners, he thought, were seeking what might be called a luxury, the opponents apprehended a nuisance. "If the faculty is refused no parishioner will be the worse; but if the faculty is granted, a great many will be exposed to more or less annoyance." Considering that some people have a passionate love of bells and bell-ringing, it is perhaps hardly fair to say, except in a technical sense, that they would be none the worse for being deprived of them. But the judgment, broadly speaking, seems to have been for the greatest happiness of the greatest number; and the result seems to give prominence to two facts: (1) that a peal of bells is a less popular form of entertainment than it used to be, and (2) that a majority in a neighbourhood who object to the importation of a peal into their midst are very likely to get their own way if they set about it systematically.

AT Berlin, Professor Koch is to have his own "Institute for Purposes of Research," and the sites for this Institute will be given him, not, as first proposed, by the municipal authorities of the capital, but by the Prussian Government. This new Institute will have two distinct divisions, (1) the "bacteriological" and (2) the "clinical" one. For the present, provisionary localities will be used, and the plans for such (made with a certain amount of celerity) have already been approved of by the learned Professor. For the purposes of Division I. an old building will be adapted, in which laboratories for analytical, chemical, and microscopic research will be fitted up, a first-class photographic atelier attached, and a number of studies (for both German and non-German medical men visiting the Institute) arranged for. For Division II., a small hospital, with some 130 beds (but with extensive accommodation for doctors and nurses) is to be erected with all modern hygienic conveniences, on the isolated barrack system. Both provisionary localities will be situated in close connection with the old State hospital, the "Charité." The total cost is estimated at about 370,000 marks.

DR. BALLARD'S Report to the Local Government Board * on a special prevalence of enteric fever during recent years in Chester contains some important and interesting information as to the possible part played by the river Dee in relation to the sewerage of the city. From the Report, which is a long one, we extract the following passage:—

"Between the ancient city and Handbridge there is a bridge over the Dee, and at about this spot there is a 'causeway or weir' constructed to dam back the waters of the river for the use of some mills in this situation. At ordinary times the tide only rises as far as this weir, but at spring tides the tidal flow surmounts the causeway, and then the river is tidal for at least fourteen miles above it. About these tides and the condition of the river below the causeway something more requires to be said. The Dee is one of the few English tidal rivers in which the spring tides rise rapidly with a 'bore' or wave. In the Dee this is about 3 ft. 6 in. high, and it sweeps up suddenly about an hour and twenty minutes before high water. This, then, is the time which elapses between low and high water in the Dee at Chester. The wave sweeps before it, in its first rush, all movable deposits in the bed and on the banks of the stream. The first rush does not overtop the causeway, but in a short time the rising tide does so, and the tidal water carries with it much of the fouling material which the 'bore' wave had swept before it up to the weir. I am informed by Mr. Enfield Taylor, C.E., who for the last twenty years has been observing the condition of the Dee, that at high spring tides the water below the weir runs up at the rate of from 5 to 7½ miles an hour; above the weir, however, it is somewhat slower in its rise. The rate of fall of the tide above the weir is only about one mile in three hours. Another matter that must be mentioned is that the river below Chester has, from very many years of neglect, become to a great extent silted up by deposit of sand in banks. Passing down the river from Chester the first considerable sand-bank, which renders the river shallow, is met with a short distance on the Chester side of a bend of the river at Saltney. At this spot, on June 15, I measured the depth of water over the bank, and found it only 4 ft. I was informed by fishermen that it was sometimes even less, and that at times they had seen the sand-bank exposed. Above this bank, or between this spot and the weir, the water is fairly deep, even at low water. Between the time of low water and the time when the tide begins to rise the water between these places is nearly stagnant. It is into this section of the river that the sewage flows continually from all the southern part of the borough except Saltney (the sewage of which village is discharged a little lower down, but is necessarily washed up by the 'bore'), and into this section also is discharged, at certain intervals, the effluent of the sewage works on the northern side."

In a subsequent portion of the report we again come on the difficulty of midden privies, and the unwillingness of the owners to incur any expense in having them emptied:—

"The Sanitary authority undertake the removal of the contents of both privies and ashpits on request, but they charge the householders with the cost of the work. The cost varies with the quantity of material to be removed, from 1s. 6d. to 3s. or 4s., and in some instances to a very much larger sum. The result is that the poorer inhabitants of houses, who can ill afford these charges, *delay the cleansing of both privies and ashpits as long as they possibly can*, especially where the filth has to be carried through the house; and it is in the case of these poor people, whose privies and ashpits are the nearest to their houses, that the retention of this filth is most dangerous. Removal, in some instances, I found neglected for six or seven months."

How can it be expected to be otherwise, when uneducated and poor persons are allowed the option of deferring an operation for which they have to pay money? Of course they do it as seldom as possible, to the detriment of the community as well as themselves. The removal, whether charged to them or not, should in their own interests and in those of public health be compulsory.

A REPORT by Dr. Parsons to the Local Government Board on an epidemic of pneumonia at Scotter, Lincolnshire, and in the neighbouring places, seems to refer the disease to what may be called biological rather than insanitary influences. The report includes, however, a statement from the local surgeon, Mr. Frankland Eminson, in which insanitary conditions are regarded as the cause of the commencement and spread of the disease: and we observe that Dr. Parsons himself, though differing from Mr. Eminson's view generally, admits some statements which seem to support it: *e.g.*:—

"The western end of the village street is drained by two sewers, which discharge into the 'parish ditch,' a watercourse which finds its way into the river Eau. Comparatively few of the houses at this end of the village are connected with the public sewers, those on the north side of the road draining separately, or two or three by a joint outfall, direct into the 'parish ditch.' The house drains in this part of the village are of very rough construction, being made of field tiles, or of brick, with rough untrapped inlets. Some of the inlets are large, square, brick catchpits, locally called 'cesspools'; others are furnished with cast-iron 'D traps,' generally loose and non-efficient. The house-drains in the south end of the village are described as having been formerly of similar character (some seen were so still), but considerable improvements have been effected by the Sanitary Authority in the drainage of this portion of the village since the occurrence of the epidemic, and many of the old inlets have been replaced by earthenware trapped gullies. The inlets are usually at some little distance from the houses; in only one instance in Scotter was one found indoors; *this was in the workshop occupied by a man who had died of pneumonia*. . . . The water supply is obtained from shallow wells; in the lower part of the village the water level is not more than 2 ft. or 3 ft. below the surface. The wells are steined only with loose masonry, and many of them are near to privies, farmyards, leaky drains, and such like sources of contamination."

IN the last number of *The Lancet*, Mr. A. L. Griffith, in a letter headed "Diphtheria in Kensal Town," makes some

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* Eyre & Spottiswoode; Adam and Charles Black, Edinburgh; Hodges, Figgis, & Co., Dublin.

very strong remarks as to the close, he even seems to imply, the necessary connexion of diphtheria with bad drainage. "Until diphtheria makes its appearance," he says, "there is no suspicion of imperfect drainage; but once established drains may be found faulty" ("will be" is perhaps rather what is meant). He then gives the following case from his own practice:—

"About five years ago I was called in to attend a family of six children and two adults. They lived in two upper rooms of a house, using the back one principally for the children. They had always noticed a very unpleasant smell in this room. The first child attacked was the worst case of diphtheria I ever saw. . . . . Half of the children had this disease, the other half had scarlatina; the mother also had a bad throat, and aborted; she was kept in the front room. The whole family recovered. I suspected the drains, my theory being that the warm air of the back room drew the foul air from the drain up the stack-pipe of the wash house along the gutter into the window. The drains were examined, and found to be improperly trapped, and the connexion with the sewer imperfect; this was at once made good, and all smells were removed."

In regard to a theory set forth by another correspondent in *The Lancet*, that the disease is due to damp, Mr. Griffith thinks that there may be a great deal of truth in this. Of course, it may be added, defective drainage often causes damp in the foundation of a house as a concomitant evil.

THE recent "cold snap," to use an American expression, has drawn the attention of many persons to weak places in their houses. For, unfortunately, the ordinary builder's ordinary house is suited only for temperate weather. As soon as a hot midsummer day comes it is impossible to be cool in it. When a sharp frost arrives everyone is shivering. There are, indeed, some points in which householders are themselves to blame. Shutters, in many persons' opinion are not needed, whereas they will keep out too glaring a sun in summer and too keen a frost in winter. Again, too, when persons have a fairly well-built house erected for them, they too often oblige the architect to put in such things as windows opening to the ground, with which no room can be warm in winter. Again, how seldom also do we see double windows or an extra window put up in winter as in Germany and France? The fact is, the so-called practical Briton is the most careless of men in regard to his house, and puts up with all sorts of inconveniences as if it was impossible to prevent them.

THE project to make a line through St. John's Wood appears likely to meet with opposition. The Manchester and Sheffield Railway Company desire, it seems, to make an open cutting through Lord's Cricket Ground. Probably they have no real desire to do this, but by asking for much they may obtain less, since Parliamentary applications are conducted somewhat on a bargaining principle. If the terminus were placed near the Marylebone-road, and the line taken under St. John's Wood through a tunnel, the inconvenience to the district would be reduced to a minimum.

ONE of the central points in the winter exhibition of sketches and studies at the Society of Water-colours Gallery (opened this week) is a study by Mr. Holman Hunt for a rather mystical subject from an "Early English Poem" (303), a study made out in white lines and touches on a grey paper. It is very conventional and mediæval in character, looking like a cartoon for stained glass, but is a remarkable work of its kind. Many of the exhibits are, as usual, finished drawings and not sketches or studies, including Mr. Tom Lloyd's "First Breath of Autumn" (13), a Thames-side scene with a very big dog and a very tall young lady looking out of a gate; Mr. C. Robertson's "Loot" (46), a large Arab interior with a number of figures; and Mrs. Allingham's various beautiful little works, which are as finished as usual, the most beautiful perhaps being "Farringford Dairy, Freshwater" (168). If it be said that such exquisitely refined rustic figures are not often met with in real life, the more thanks to Mrs. Allingham for inventing them. Among fine works which belong more to the "sketch and study" order may be mentioned Mr. Hunt's "Warkworth—Sunlit Shower" (161), perhaps a little too vague in the attempt to give the blotted effect of landscape seen through a shower; Mr. Colin B. Phillip's "Great Landslip, Loch Ridden" (91); Mr. R. W. Allan's "Kirchweihe" (19) and "A Scotch Washing" (33); Mr. J. Parker's "Poppies" (98), a lovely study of a girl; Mr. Eyre Walker's "Old Farmstead" (109); Mr. David Murray's "Mid-day" (193); Mr. Albert Goodwin's "Ponte Vecchio, Florence" (243), a study of night effect; and Mr. Charles Robertson's "The House-tops, Damascus" (337), a study of an Oriental city from a new point of view. "Mr. Goodwin's "Afterglow in the Mediterranean" (185), a very large work, is powerful enough in the effect of sky and sunset light, but the sea is hardly a success. The same artist sends a beautiful little study of "Maidstone" (20). One corner of the room is occupied by a selection of the works of the late Mr. Arthur Glennie, who has long contributed studies of ancient Rome and its neighbourhood to the Society's exhibitions. Mr. Glennie drew ancient architecture admirably, and the collection of drawings shown here, though a little hard and antiquated in style, are of great interest as refined and faithful representations of the localities and monuments illustrated.

A GOOD deal has been said lately as to the desirability of architects becoming practised in modelling, and it will be of interest to those who sympathise with this view to hear that Mr. Conrad Dressler, the well-known sculptor, has opened evening modelling classes at his studio for the especial use of architects and painters. No one could be more capable of giving instruction in this class of work than Mr. Dressler, who, as some of our readers are aware, has devoted a good deal of attention to the modelling of decorative work.*

LETTER FROM PARIS.

A GREAT deal of feeling has been aroused in the artistic world by the sudden dismissal from his position of M. Coquart, for many years architect to the École des Beaux-Arts and the Cour de Cassation. This step has been taken suddenly and without notice by M. Yves Guyot, Ministre des Travaux Publics, who holds also in his hands the direction des Bâtiments civils. The excuse for this high-handed measure is apparently that M. Coquart has exceeded the expenditure intended on the Cour de Cassation, and has been too dilatory in the forwarding of the work for the enlargement of the École des Beaux-Arts. The decision is regarded here as a most unjust one, and the manner in which it has been carried out, without warning or without any opportunity for the architect to justify his procedure, causes a general anxiety as to the whole position of architects under the present Government. In regard to the Cour de Cassation, the Grande Salle d'Audience, the decoration of which is carried out in a most elaborate manner and with a great amount of gilding, has after all only cost 25,000 francs, or 45 francs per square mètre, which can hardly be considered an extravagant sum for work of that importance. In regard to the École des Beaux-Arts, M. Coquart had transformed the Hôtel de Chimay, bought for the purpose of enlarging the École, and utilised the existing materials in such a manner as to realise a very considerable economy in the work in comparison with what had been expected. M. Coquart has lived the life of an artist devoted to his art, and has amassed no fortune out of his professional labours, a circumstance which renders the blow all the heavier to him. The Parisian press in general has sided strongly with him, and the pupils of the École des Beaux-Arts, in conjunction with the members of the Institut (of which M. Coquart is also a member), have addressed a strong remonstrance to the Government against this procedure. The Association of "Architectes Diplomés du Gouvernement" have addressed to M. Coquart the following letter:—

"Cher et éminent Confrère

La mesure qui vient d'être prise à votre égard nous a doublement émus, car elle frappe à la fois l'artiste et le membre de notre Association.

Sans perdre absolument l'espoir de vous voir terminer votre œuvre, permettez nous, cher maître, de vous addresser nos sincères et profonds regrets, ainsi que l'expression de notre respectueuse sympathie."

Here follow the signatures. The letter expresses the general feeling in the artistic world in regard to this step. As matters now stand, however, M. Louis Bernier, architect (a former holder of the Prix de Rome) has been named to replace M. Coquart at the Ecole des Beaux-Arts, and the continuation of the work at the Cour de Cassation is notified as entrusted to M. Paul Blondel.

While M. Yves Guyot has been, so to speak, sentencing M. Coquart to execution, his colleague of the Ministére de l'Instruction Publique, M. Bourgeois, has been occupied in dealing somewhat severely with the "joyeusetés" of the pupils of the Atelier Bonnat at the École des Beaux-Arts. We have before suggested (in referring to the question of the admission of female students to the École), that the manners of the Ateliers were not quite perfect. The youthful mob of students gathered together here affect a licence of behaviour which, to say the least, is hardly in accordance with the standard of manners of the present day. In particular they have adopted in full force the system of "Brimades," so much practised in the French regiments, and against which a special interdict has been made at the military school of St. Cyr. The word "Brimade," which has probably no equivalent in English,* signifies a systematic series of vexations to which new comers are subjected, and which too often pass quite beyond the reasonable limits of joking. On this occasion the "Brimade" degenerated into a furious fight in downright earnest, leading to serious injuries. Several pupils have been sent away from the schools as a disciplinary measure; the Atelier Bonnat has been closed, and the seventy-three pupils who were members of it have been deprived of the benefit of State instruction for three months. It is generally considered that the Government have been right in interfering, and that the thing had gone too far to be any longer overlooked.

The affair has been made an occasion, on the part of the Conseil Supérieur of the École, for examining into the conditions on which students are admitted into the different ateliers. As a matter of fact, every head of an atelier admits whom he will and how he will, without any pre-arranged conditions. The so-called State ateliers are therefore, in actual fact, only private ateliers established in a State building, except that the instructions is gratuitous. This is considered an anomaly, which the Conseil Supérieur intends to put an end to in future by requiring that every pupil should be admitted by the central authority of the École. The ways and means for operating this alteration will be considered shortly.

Other reforms are in the air. The recent discussion of the Beaux Arts budget has attracted special attention to the present tendencies of the École, and it is probable that there will soon be important modifications in the manner of Government intervention in the artistic education of the French nation. That is at least the conclusion to be derived from certain speeches in the Chamber of Deputies, in the course of which the Ministre de l'Instruction Publique observed that "there ought not either to be a State art or a State taste," and that the business of the State was to go wherever there was real talent, without any question of schools of teaching; a principle the general truth of which will hardly be contested.

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* Particulars can be obtained from Mr. Dressler at his studio, 36c, Glebe-place, Chelsea.

* We believe the word has no equivalent in English; but if our Paris correspondent got hold of some of the private annals, say of an English cavalry regiment, or of some of the reminiscences of Woolwich students, he would probably find that the thing is. It is very well understood in England. Among our young men, however, it is considered a point of honour never to lose temper over these little amusements.—Ed.

In the last competitions in the École des Beaux-Arts the subject given in historical architecture was the reconstruction of an ancient Persian palace; the jury awarded a second medal only, to M. Mars, pupil of M. Laloux.

Since our last letter the competition for the decoration of the Galerie Lobau at the Hôtel de Ville has been decided. Out of seventy-five competitors the jury selected five who are to submit, in a few months, a portion of their respective designs of the size intended for execution. The five chosen are M. Boureau (painter), M. Espouy (architect), M. Guillaume Dubufe (painter), M. Moreau Neret (painter) in collaboration with M. Noël Bouton (architect), and M. Picard (painter) in collaboration with M. Risler (architect). In order to facilitate this second competition, the Service des Beaux-Arts has had constructed large models of one cupola, one of which will be put at the disposal of each of the competitors, who will thus find their work much simplified.

To the Galerie Lobau competition has just succeeded, at the Hôtel de Ville, that which the "Société Française des Habitations à Bon Marché" has opened for studies of lodging-houses and workmen's cottages of various types to be erected at St. Denis, on an irregular piece of ground near the "Nord" railway line. Among the forty-eight schemes submitted, very few show any remarkable novelty. Most of them are only repetitions of commonplace forms of structure resembling barracks, and where many families are crowded into one block in a manner by no means favourable to healthy conditions. One project only, No. 35, seems to realise any improvements worth speaking of. It includes various types of habitation, with one fairly picturesque style of architecture pervading them; it is well laid out and with an abundant distribution of water. The total effect of this design contrasts agreeably with the monotony of the work of the others. The decision on the competition will be made some time during the present month.

Public works have been mostly stopped the last few days by the exceptionally cold weather. This has also necessitated some delay in the work of exhuming the ancient arena in the Rue Monge, which M. Juste Lisch had been carrying out actively. All the side of the arena facing Rue de Navarre has now been uncovered and restored, and at the first fine weather M. Alphand's gardeners will appear on the scene and transform this curious vestige of ancient Lutetia into an ornamental square. The municipal administration proposes to provide a small museum on the site, in which will be placed various antiquities discovered in or near the site, including fragments of sculpture, coins, jewels, pottery, and even some skeletons discovered in Gallo-Roman sepulchres.

While preserving the remains of ancient sculpture, the authorities have also been turning their attention to the preservation of some modern sepulchral monuments. The cemeteries of Paris are full of monuments to illustrious personages, many of which are works of art of great interest, which have suffered greatly from time and from want of proper care. M. Havard, Inspecteur des Beaux-Arts, has been struck with the melancholy condition of many of these monuments, and has expressed the opinion that it is the duty of the State to take under its charge the repair and conservation of these monuments. He suggests that the Commission des Monuments Historiques should classify them, and that an annual sum of 10,000 francs should be placed to the credit of the Ministère de l'Instruction Publique to be employed in their preservation and repair. The idea has received much support in artistic circles, and it seems not improbable that it may be seriously taken up.

There is much talk about again enlarging the Luxembourg Museum, which is still too small for its purpose. This enlargement would necessitate the construction of a new gallery which would be projected from the central block of the building and abut on the grille of the Rue Vaugirard. In this way the Museum would form three blocks surrounding an interior court which would permit of the exhibition of a certain number of works of sculpture. There is also talk (for the twentieth time at least) of the completion of the Boulevard Haussmann, and the Municipal Council will probably be presented presently with financial proposals in regard to this often-discussed and long-deferred project.

We have to record the death, a few days since, of M. John Lewis Brown, a painter whose talents were well-known in London as well as in Paris. He was born at Bordeaux in 1829. He first became known for his studies of horses and dogs, for military subjects and sporting scenes, and latterly had given himself more to the latter class of subjects than to any other. He went through a steady course of study of the horse at the "École des haras" at Pin (Calvados), and subsequently established himself at Bordeaux in 1859, but his success in various exhibitions led him to come to Paris. His works are very numerous, and distinguished by a fine sense of colour and great power of drawing. Scarcely any exhibition in Paris of late years was without examples of his work, whether in water-colours, pastels, or etchings, besides his numerous oil paintings. He obtained medals in 1865, 1866, and 1867; and the Cross of the Legion of Honour in 1870. He exhibited four works at the Great Exhibition of 1889, and a small collection of his pictures formed a striking group in the "Salon Meissonier" of this year. He died after a long and painful illness, much regretted by all who knew him.

We have also to record the death of M. Léon Rivière, expert of the Tribunal de la Seine, and architect of the Crédit Foncier de France. He died at Paris at the age of seventy-six.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE third ordinary general meeting of this Institute for the present session was held on Monday evening at No. 9, Conduit-street, Regent-street, Mr. Alfred Waterhouse, R.A., the President, in the chair.

The Recent Examinations.

The Secretary announced that the following gentlemen had passed the Preliminary Examination, and had thereby become Probationers of the Institute:—

Messrs.: Frederick John Almond, Manchester; Henry Victor Ashley, Woodside Park, N.; Raymond Turner Barker, Southgate; Ralph Waldo Bedingfield, Leicester; Thomas Percy Bennett, Manchester; Percival Cherry Blow, St. Albans; Cecil Claude Brewer, Watford; Albert Thomas Butler, Dudley; George Edward Clay, Warrington; Frederic Wykeham Chancellor, Finsbury-circus; Henry James Cooper, Leicester; John Marie Crean, Dublin; Harry Bulkeley Creswell, Denbigh-place, W.C.; Edward Cruikshank, Bloomsbury-square; Ernest Reuben Orton Davis, Leicester; Thomas Denton-Brooks, South Elmsall, near Doncaster; Charles Frank Devitt, Finsbury-circus; Charles Henry Dorman, Northampton; John William Fair, Manchester; Thomas Speirs Fraser, Glasgow; Richard Frank Freeman, Bolton-le-Moors; Thomas Wallis Gordon, Nottingham; George Gregory, jun., Stonehaven, N.B.; Herbert Willcox Hare, Manchester; William Arthur Lionel Hill, Derby; David Horn, Hampstead; Franklin Kaye Kendall, Blackheath; Harold Clapham Lauder, Tunbridge Wells; William Langley, Leicester; Herbert Henry Law, Northampton; John Bowmer Mason, Derby; Percy Matthews, Crouch-hill; William Allen Maylett, Worcester; Thomas Clemshaw Mayor, Manchester; Arthur Ernest McLewan, Handsworth; William Daniel McLennan, Paisley; Percy William Meredith, Bideford; Thomas Anderson Moodie, Glasgow; Lionel Forster Morres, Kentish Town; Wilfrid Rowland Mosley, Derby; Charles Frederick Newcombe, Newcastle-on-Tyne; Robert Orr, Scarborough; George William Phillips, Peterborough; Francis John Potter, Hampstead; Ambrose Macdonald Poynter, Albert Gate; Orlando Edmund Thomas Prescott, Southport; Roland Rich, Newcastle-on-Tyne; Herbert Cyril Sinnott, Westbury-on-Trym; Thomas Arthur Sladdin, Haverstock-hill; John Elliott Smales, King's Langley; Osgood Smith, Crouch-hill; John Charles Southcombe, Arlington, near Barnstaple; Arthur John Stedman, Farnham, Surrey; Isaac Taylor, Manchester; Athol Sabben Tuke, Chiswick; Bernard Hugh Webb, Hampstead; and Emil Fitzwalter Wren, Powis-square, W.

The following gentlemen were reported as having passed the Examination for the Associateship held last week, viz.:—

Bartlett, Arthur Edward, Blyth-road, W.
Conner, William Tait, Glasgow.
Flower, Arthur Symth, Stanhope-gardens.
Gamble, Henry Gilbert, Highgate.
Glazier, Richard, Manchester.
Greenaway, Francis Hugh, Elgin-crescent.
Howell, William Roland, Reading.
Hutchinson, Christopher Bernard, Kensington.
Jackson, Arthur Blomfield, Mecklenburgh-square.
Jefferson, John England, Stroud Green.
Jones, George Sydney, Sydney.
Mitchell-Withers, John Brightmore, jun., Sheffield.
Musto, Frederick, Leeds.
Pegg, Hallam Carter, Nottingham.
Pite, William Alfred, Bloomsbury-square.
Porter, Horatio, M.A., Russell-square.
Pratt, Robert Baillie, Brecknock-road.
Rogers, Henry Cornwallis, Gerald-road, S.W.
Smith, Walter Henry, Maidstone.
Strange, Charles Hilbert, Stoke Newington.
Sutcliffe, George Lister, Heptonstall, *viâ* Manchester.
Wigglesworth, Herbert Hardy, Aberdeen.
Williams, Frederick Ernest, Onslow-gardens
Wonnacott, Ernest Wm. Malpas, Bishop's-road, W.
Young, Vivian Edward, 53, Ennismore-gardens, S.W.

The Ashpitel Prize (it was announced) has been awarded to Mr. F. William Bedford, formerly of Leeds, aged twenty-two years.

The Royal Gold Medal, 1891.

The Chairman announced that, on February 2, the name of the person who is considered by the Council the fitting recipient of the Royal Gold Medal for 1891 will be announced. Any member of the Institute desirous of sending in any name is requested to do so before January 1.

The Architectural Association.

The President then said he had learned from sources which he need not particularise that the references he made to the work of the Architectural Association in his presidential address at the opening meeting of the session had left an unfavourable impression on the minds of some who were deeply interested in the welfare of both the senior and the junior bodies of their profession. His words, of which the chief complaint was made, were:—

"The educational work done by the Association does not appear from the statistics with which I am furnished to afford any great material assistance to the Institute,"

and he had been asked to show from the returns of one whole year what was the proportion of members of the Association who passed the examinations in architecture, which he had great pleasure in doing. During the current year, 1890, two examinations to qualify for candidature as Associates had been held in London, at which 51 candidates had passed. They had come up obviously under the old arrangement, none of them having passed either a preliminary or an intermediate examination, and there had been no candidates for this qualifying examination at any non-metropolitan centre. Of the 51 who passed in London 32, he understood,—and it gave him great pleasure to have to say so,—were members of the Association, and most of the 32 were London men, but he thought they were justified in asking whether they owed their successes to attendance in the classes of the Association, for the President of the Association, in his address of 1889, asked "How it is that when a member wishes to go up for the Institute examinations we find that, instead of availing himself of the opportunities afforded him in the Association, he goes to a private institution to obtain the instruction he requires?" And again, in his address of this year, he said he did not think "a student who confined himself to attending classes at the Association would stand much chance of passing the Institute examinations." Such an opinion expressed by a gentleman who must be thoroughly conversant with the facts of this important subject, and the statistics with which he (the President) was furnished by the Secretary of the Institute, seemed to him to justify the doubts expressed in his address. Undoubtedly, while there was only one examination the Institute obtained a large proportion of its recruits from among the members of the Association, but the establishment of the progressive examinations already appeared to him to have effected a change in this respect, as he then stated, and as he would now show from details prepared for him of the three preliminary examinations already held in London and other parts of the United Kingdom. Up to the present 196 probationers had been registered, of whom 44 or 46 were now members of the Association, but at the time of their application, as was natural, only about 26 out of the 196 were members of the Association, although 75 out of the 196 came from London and its neighbourhood. Of the 32 gentlemen from London and neighbourhood who passed in November, 1889, only 10 were members of the Association; of the 23 who passed in March last, only 10 were members; and of the 20 who passed this November,

only 6 were members. Further, not one of the 10 probationers registered in 1889, who were also members of the Association, helped to compose the 8 who were admitted to the first intermediate examination held in November, 1890. On the other hand, in the space of twelve months, some 20 gentlemen, after admission to the Probationers' examination, had joined the ranks of the Association; and he sincerely trusted that the majority of their 46 Probationers who belonged to the Association would make a good show at the intermediate examinations to be held in November of next year and in March, 1892. It might be interesting to add that, of the 196 probationers, 89 were declared exempt from examination, 63 were examined in London, 3 in Dublin, 3 in Glasgow, 12 in Bristol, and 26 in Manchester, and he thought it was impossible to estimate too highly the debt of gratitude owing to most of their allied societies for their disinterested labours on this and previous occasions. But, to return to the Association, though he felt bound to give these statistics in answer to certain criticisms on his address, he wished it to be distinctly understood that he did not in his remarks wish to imply anything prejudicial to the Association. Though he never had the advantage of being a student within its ranks, he had been a member for many years. He had always upheld its advantages, and if he spoke plainly the other night it was out of real interest in its welfare, and not out of any antagonistic feeling whatever. He wished the Association to seriously consider its position with regard to the Institute, and thought he could best express his wish by calling attention to what he believed to be the facts of the case.

Mr. H. C. Brodie suggested that a letter by Mr. Owen Fleming, containing statistics regarding examinations published that day in *A. A. Notes* should be republished in the *Journal* of the Institute.

The President replied that if possible the editors of the *Journal* would reprint the letter.

Sassanian Architecture.

Mr. R. Phené Spiers then read a paper on "Sassanian Architecture," of which the following is an abstract:—

Mr. Spiers commenced by stating that the recent completion of two works, — "L'Art Antique de la Perse," by M. Dieulafoy, and the "Histoire de l'Art dans l'Antiquité," vol. v., by MM. Perrot and Chipiez,—both of which added to the scanty knowledge we possessed of the architecture of the Sassanian Dynasty (A.D. 226-636), had suggested this subject as one likely to interest the Institute; for though that dynasty had endured but little more than 400 years, the architects and artists of the period had developed a characteristically marked style from a constructional point of view. But the style had, in Mr. Spiers's opinion, other claims to consideration, as it seemed to form a connecting link between Assyrian and Babylonian architecture on the one hand, and Byzantine work on the other,—of retrospective value, if the vaults of Al Hadhr, Serbistan, and Firouzabad represented the traditional method of such coverings handed down from Assyrian times, and of prospective value in regard to Byzantine work, provided that the dates given to Serbistan (about A.D. 350), and Firouzabad (about A.D. 450), were correct. The earliest building classed as Sassanian by Fergusson was the Palace of Hatra, now called Al Hadhr, respecting which little was known beyond the information communicated to the Institute in 1846 by Mr. (now Sir) A. H. Layard. There were further accounts of the ruins given by the late Dr. Ross, the surgeon of the British Residency at Baghdad, in the 9th volume of the Journal of the Royal Geographical Society, and by Mr. Ainsworth, in the 11th volume of the same Journal, though for a general description of the city, members were referred to the MS. Essay by Sir H. Layard in the Institute Library. Two of the great halls of Al Hadhr measured about 95 ft. by 42 ft. or 46 ft., and the third 60 ft. by 65 ft., and their vaults which had fallen in were said to be semicircular, though the Sassanian vaults were usually elliptical. Their doorways were, however, invariably circular-headed. Certain of the voussoirs of the arches were enriched with sculptured heads, and the entrance doorways to the smaller halls had heads with curly bag-wigs, such as were found on Parthian coins, on every voussoir. As regarded the form of the vaults, the elliptical, or three-centred curve, was that used at Serbistan and Firouzabad, and as a matter of fact that form of arch in brick construction was one of the earliest known, for the vaulted granaries behind the Ramession of Thebes in Egypt were of the same elliptical form as those found in Persia.

The possibility that the palace owed its erection to Parthian rather than Sassanian architects, had been suggested in Professor Rawlinson's "Sixth Great Oriental Monarchy," for when the city was besieged by Trajan in A.D. 116, it contained a Temple of the Sun, which was probably the square building at the back of the palace, containing a frieze above the doorway, ornamented with the head of the Sun-God, with crescents to represent the moon on either side, and, among other emblems, winged griffins. These last were precisely similar to a griffin found at Warka (the ancient Erech), in the south of Mesopotamia, 250 miles south of Al Hadhr, and described in the work on Chaldæa by Loftus, who therein gave drawings of various objects discovered at Warka, of the same type as that shown in Sir H. Layard's sketches, viz.,—Syrio-Greek, a style which distinguished all Eastern work of that period. The second building mentioned by Fergusson was the so-called Palace of Tigranes, now the Great Mosque at Diabekr, which seemed to have been built up of materials taken from some earlier building, while the ornament, which resembled that found by Loftus at Warka, seemed to be Parthian in style. The next example quoted by Fergusson, the Palace of Serbistan, seemed to Mr. Spiers to be the first genuine Sassanian building, and in design and construction it appeared to be the outcome of many experiments made in earlier buildings no longer existing, or not yet discovered. The halls, which were about 26 ft. wide, were covered with elliptical barrel vaults, traces of which were to be seen on an end wall.

Next, there was the Palace of Firouzabad (A.D. 450), which had a frontage of about 170 ft., and a depth of about 320 ft. The entrance consisted of a hall 90 ft. in depth, nearly 40 ft. wide, covered with an elliptical barrel vault. Other halls were on either side, and beyond were three halls side by side, each vaulted with a dome on pendentives, which consisted of a series of concentric arches advancing one over the other and displaying increased scientific knowledge, whereby the Sassanian architect did away with centring altogether, each superimposed ring being carried back on the top of such ring beneath, and resting on it. Another palace, distant about thirty miles from Baghdad, that of Ctesiphon, on the Tigris (about A.D. 500), which was known to have been built by Chosroes I., formed a rectangular block 312 ft. by 170 ft., and about 110 ft. high. In the centre of the front a magnificent portal,* which rose to the full height of the building, gave access to a hall, 163 ft. deep by 83 ft. wide, covered with an elliptical barrel-vault, 95 ft. from the ground to the crown of the vault, and 67 ft. from the ground to the springing of the vault. The bricks or tiles with which it was built were laid flatwise, as in the granaries at Thebes. The remains of two other palaces had been found in Persia, one at Imumzade which consisted of a dome on arches, and a second, called the Tag-Eiran, recently discovered by M. Dieulafoy, the hall of which showed a considerable advance in construction, as it was lighted by clearstory windows between the barrel-vaults. These vaults were composed virtually of a series of transverse arches, the interspaces being vaulted across in a most scientific manner. Two other Sassanian buildings remained to be mentioned, which were remarkable for their decoration rather than their construction, namely, the Palace at Mashita, and the Hall at Rabbath-Ammon, both in Moab. They were supposed to have been erected under Chosroes II. by Syrio-Greek artists, and they were enriched with ornament derived from Hebrew monuments, interspersed with Persian figures and Sassanian decorative details.

Mr. W. Simpson, R.I., Hon. Associate, expressed great satisfaction at Mr. Spiers's paper, which brought together the main points of the Old Sassanian Architecture, and had exhausted almost all that was known of the subject. Architectural students were tending more eastward in their researches, so that men, who had the time and means, were wanted to explore for architectural remains, and he felt sure, if the teachers at the Universities could be influenced to so direct the thoughts of young men, that valuable results would follow. Major the Hon. M. G. Talbot, R.E., of the Survey Dept. attached to the Afghan Boundary Commission, had made plans and sections of some rock-cut caves found by him at a place called Haibak, not far from the ancient Balkh. Among them were a number of domes, which, although excavated, were copies of structural domes, and similar in shape to the Sassanian ones. The sectional outline of one tall oval dome was almost the same as that of the great arch at Ctesiphon. These caves showed that the Sassanian style existed over a much wider area than the Mesopotamian Valley. Poetry, architecture, art, and science generally had once been in the most flourishing condition in Khorassan and the countries round it, and it was quite possible that the art of the Sassanians came from that region. In Persia, where wood was scarce, vaulted roofs and domes were the rule. Central Asia must have been, he considered, in a similar condition, and, having seen how easily simple villagers constructed vaults and domes without centres, it appeared to him that in all probability such roofs had been used in those regions from very early times. The Euphrates valley had also been rather destitute of wood, which he thought accounted for the vaulted roof being used in that region; and it might be assumed that from Mesopotamia to the ancient Balkh and Samarkand the vault and dome existed from the earliest period of civilisation. Professor Baldwin Brown, in Vol. V. of the "Transactions," gave a reference, showing that ancient Alexandria had been built on vaults. The vault seemed to have existed far more widely than had been previously realised; it had been a sub-structure only wanting the necessity, or occasion, to bring it above ground as a superstructure. In the domes and vaults now built in Persia, the bricks were placed in a sloping position, as described by Mr. Spiers, so as to rest partly on one another, which no doubt largely helped to do without centres. He supposed lightness was the object of the use of pots in domes; the Persians in building a mud wall made square hollow bricks, to which they gave the term "Sanduk," which meant a box, and these they placed on the top courses for lightness. Mr. Simpson concluded by proposing a vote of thanks to Mr. Spiers for his paper.

Mr. Alma Tadema, R.A., in seconding the motion, said he was sorry he attended the meetings of the Institute so seldom, because when he did so he always learnt a great deal. As far as the paper was concerned, he could only repeat what Mr. Simpson had said, that it was learnedly wrought out. It had caused him to think particularly of the old question of the arch and the dome with reference to which he was rapped over the knuckles many years ago, because he contradicted the statement that Arabic architecture had its dome from the Byzantine, which he did not believe. With reference to the Palace of Tigranes, he rather believed it to be Armenian.

The President said the members were very much indebted to Mr. Spiers, who had taken so much pains to illustrate his subject and to bring it before them in the way he had done. There seemed to be very little left for them to exercise their ingenuity upon, but to him the illustrations contained a most striking feature in the arch of Ctesiphon, which he thought was nearly 100 ft. high, and the curious wall ornamentation on either side of it. They would all remember the bit of ornamentation from Mashita which was so lovely and so exquisitely rich.

The resolution was cordially adopted, and the proceedings then terminated.

Aberdeen Street Improvements. — The Improvements Committee of Aberdeen Town Council agreed on the 27th ult. to the extension of Huntly-street to Chapel-street, the cost of the scheme being 3,000*l.*

Public Improvements at Hanley.—On the 12th ult., Colonel John Ord Hasted, R.E., Inspector of the Local Government Board, held an inquiry at the Hanley Town-hall into an application by the Town Council for power to borrow 8,650*l.* for market alterations and street improvements, 3,750*l.* for the completion of the Town-hall, and 1,500*l.* for the adaptation of the Potteries Mechanics' Institution to the purposes of a museum and science schools. There was no opposition offered to either of the applications.

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* See sketch and description of this great arch, in a letter by Mr. Phené Spiers printed in the *Builder* for March 24, 1888, p. 211.

Silver-Gilt and Mother-of-Pearl Spoon, with Crystal Handle.

Pyx belonging to Stonyhurst College.

Snuffers (Renaissance).

Silver Table presented by the City of London to Charles II. (from Windsor Castle).

SPECIMENS OF ORNAMENTAL WORK.

SOME SPECIMENS OF ORNAMENTAL WORK.

THESE illustrations are from a collection made by the late Sir Digby Wyatt, to which we have before referred, for an intended publication. The Pyx from Stonyhurst is the most characteristic piece of design; the treatment of the supports round the glass receptacle is curious and not inelegant. The Renaissance table from Windsor Castle is a rich specimen of the work of its epoch, very satisfactory on general lines, but showing that constant defect in Renaissance furniture, the want of proper joining of the constructive parts of the design; the scroll legs are merely (to all appearance) butted against the lower part of the central stalk, instead of appearing to be constructively connected with it.

We do not know the "provenance" of the other two objects. The snuffers suggests in the handles the kind of treatment which is dear to the makers of ceremonial keys for the opening of buildings in the present day, viz., the use of a miniature Classic capital from which a stem seems to spring. The design of this portion is however more workmanlike than we generally find in the ceremonial key, as the parts where strength is required really appear strong. The fault of the design is in the second heads or masques introduced on the handles below the torsos. They have no decorative business there, and just spoil what would otherwise be a good design of its kind.

The spoon is so curious as to be worth illustration, but certainly not imitation. There is something clever certainly in the way in which the dragon's tail is carved on in a spiral twist round the handle; but the three component parts have no relation to each other in idea, and the connexion of the handle with the bowl, as if held in the dragon's mouth, introduces an appearance of weakness just where that of strength ought to be most emphasised.

ARTS AND ARTISTS IN FORMER TIMES AND TO-DAY.*

UNTIL a comparatively recent period a monument of architecture,—or, in more prosaic words, a national or public building,—contained within itself, as parts of itself, all the great arts, technic, æsthetic, and phonetic; and these are three words which, in spite of Examination Boards, the majority of us have often difficulty in clearly and tersely defining. Let me therefore adopt the definitions of them given by the late James Fergusson. He tells us that the *technic arts* are those resulting from one's muscular action or power, whereby the materials composing a great building are wrought into constructive forms; that the *æsthetic arts* are due to those developments of sense by which one is enabled to arrange and distribute the parts of a great building for given purposes, culminating in what is called "design"; that the *phonetic arts* emanate from one's power of representation, their many developments culminating in "sculpture" and "painting." The two first suffice to make a building useful and beautiful; the phonetic arts endow it with expression, whereby it becomes a record of the life and manners, the thoughts and aspirations, of the people who erected it,—in short, an historical monument. To put the matter in another way: a great building may be described as perfect,—first, on *technic* principles, because of the proper use, application, and distribution of materials in its construction; secondly, on *æsthetic* principles of design, because of its convenient and harmonious arrangement, combined with its ornamental construction; thirdly, for its *phonetic* adjuncts, like sculpture and painting, employed as voices to tell its story,—to explain the purposes for which it is erected.

These arts were common to the artists of every nation which achieved excellence prior to the invention of Printing, and the consequent diffusion of general knowledge, between the years 1450 and 1550, wherein the boundary line between the old and the new methods of artistic practice, according to Fergusson, must be sought.

The Ancient Migrations.

The fame of Alexander of Macedon, the master of Greece some 2,200 years ago, still lives in the names of cities in eastern Europe, in Egypt, all over Asia Minor, and in north-western India. His armies are said to have started from Macedonia, over the Balkans to the Danube, and then to have returned southwards to the Hellespont which they crossed in order to make the conquest of Asia. That the armies of Alexander the Great contained a vast number of Greeks may be assumed to be correct. The Greeks for 200 years before his time, and for at least 800 years afterwards, were the artists of the world, or rather that part of it known as the Roman Empire; and their migratory character is proved in a host of instances. That they reached as far East as the Punjab is attested by the discovery in recent years of Greek sculptures in that part of India; and that Indian tradition preserved the habit of systematically moving large bodies of men is an historical fact. There is an authentic account, left by an English ambassador sent by James I. to negotiate a commercial treaty with the Emperor of Hindustan, of what was then called "a movable court," which moved rapidly from place to place. Sir Thomas Roe, the ambassador referred to, saw one "set up and finished in four hours, though it was done with great order and exactness." The Emperor was said to "go a progress," which resembled the removal of a nation. At the several halting places, his pavilion was placed in the centre

* A paper read before the Architectural Association on Friday, the 28th ult., by Mr. William H. White, Secretary of the Royal Institute of British Architects, as elsewhere mentioned.

of the encampment, and isolated from all around. Every one knew what ground to take, and how far from the Emperor he must pitch his tent, or raise some kind of shelter; every one knew where to go for the supply of his wants—for special streets, so to speak, were devoted to different tradesmen, artificers, and others. Elephants, horses, oxen, were arranged in specified places; they were always ready to start for some other camping place. Some such systematic method of travelling as this must have prevailed before the time of the Romans; and it is believed that 400 or 500 years before Christ great cities flourished in Asia Minor and northern Africa in which extraordinary excellence was attained in the construction of buildings with light and perishable materials, under the guidance of Greek artists. The dome and even the arch were then used. The Roman, when, so to speak, he came upon the scene, found the arts of which he afterwards made so extensive a use in working order.

Another hero, of whom more information is extant than has been found of Alexander the Great, was Julius Cæsar. His camp was a square, entrenched on its four sides, laid out in streets within, and having quarters specificially arranged for the several divisions of the army. In the camp was a market-place, and there were special quarters for the artificers. Cæsar had to build bridges over the Rhine and other rivers, and before he crossed to this country he had to build a fleet. His armies were something more than mere aggregations of fighting-men. They were communities of soldiers and craftsmen who at times were compelled to settle down in one place, to remain there for months, even years; and the arts of peace were probably pursued by them with as much earnestness as those of war.

The masters and chief artists employed by the Romans in the design and superintendence of their buildings were Greeks. Their various corporations of workmen were highly trained; and, as may be seen at the present day in the quarries once worked by Roman enterprise, the organisation for the supply of materials was of a character beyond the conception of modern practice. Even when the so-called Barbarians were masters of Rome, the Emperor Theodoric instructed his architects in a proclamation—quoted, a short time ago, by one of the Presidents of the Architectural Association—which serves to show in what esteem the design and erection of monumental edifices was then held. From Theodoric's time until the eleventh century the thick veil drawn over history has never been lifted. The annals of the arts during the first half of that period are absolutely void, and during the remaining half extremely meagre. One thing, however, is certain. The great cities founded by the Romans in all parts of their Empire remained, to afford a shelter or a quarry to generation after generation of inabitants.

The Monastic System.

That the influence of Rome over the world was ever entirely lost is more than doubtful; its moral influence exists at the present day over an enormous portion of the globe. The monastic system, practised more than 1,800 years ago, flourishes, it may be said, to-day. Gibbon, in perhaps the most fascinating chapter of his "Decline and Fall of the Roman Empire," describes the early communities of monks. He says:—

"The philosophic eye of Pliny had surveyed with astonishment a solitary people who dwelt among the palm trees near the Dead Sea; who subsisted without money, who were propagated without women; and who derived from the disgust and repentance of mankind a perpetual supply of voluntary associates.'

Colonies of monks flourished at Thebes in Egypt, and in the cities of the Nile, during the third and fourth centuries; and about A.D. 340, the practice of the monastic life was introduced and taught in Rome. A little later, monasteries were established in Gaul; and at last every city of the Empire was inhabited by increasing multitudes of monks. Gibbon shows how the monastic life, by the aid of which the arts came down from Roman times to our own, was propagated over the world. He says that "the life of Hilarion," who was born at the close of the third century,

"Displays the facility with which an indigent hermit of Palestine might traverse Egypt, embark for Sicily, escape to Epirus, and finally settle in the island of Cyprus. . . . The pilgrims who visited Jerusalem eagerly copied, in the most distant climates of the earth, the faithful model of the monastic life. . . . The monastery of Banchor, in Flintshire, dispersed a numerous colony among the barbarians of Ireland; and Iona, one of the Hebrides, which was planted by the Irish monks, diffused over the northern regions a doubtful ray of science and superstition."

So says Gibbon; and there can be no doubt that when the Roman power came to an end, and even during its decline, these aggregations of monks exercised, in their respective localities, both physical and moral sway over the country around.

What a camp was to an ancient Roman army, with its market-place, its streets of artificers' workshops, its functionaries of every description, the original monastery was to the army of the ancient Church. Like the movable "court" or camp which Sir Thomas Roe saw in India, three centuries ago, the Emperor's pavilion, that is to say, the church, was placed in the centre, and the several dependencies had their respective positions around. The villa or town which the Romans had built often became a home for the monks; and there is abundant evidence of their having converted the ancient temples and other buildings into churches and monastic dwellings. The Roman villa was in fact the model of the monastery or abbey of the ninth century. One of these great abbeys, founded some two centuries before the time of William the Conqueror, was situated near Mâcon. Its name and fame will long endure, for in the Middle Ages the Abbey of Cluny was the common school or university of arts, whence issued the men who directed the construction of the great abbeys, cathedrals, and churches of France and England, of a large part of Germany and Spain, and of northern Italy. If this fact be once grasped—that in the Middle Ages there flourished a central institution in which a common language, the low Latin, was spoken and taught—the Mediæval sequence of events wherein, under the tutelage of religion, the great arts played a principal part, becomes perfectly clear and comprehensible. From the Abbey of Cluny went forth the masters and chief artists of the eleventh, twelfth, and thirteenth centuries; and throughout western Europe similar branch establishments, founded on the model of Cluny, existed. Not only all the learning, but all that contributed to education, was confined within the religious houses, and could be learnt only from the monks. How was it that they worked? How came it that the face of western Europe, in the course of five centuries, was covered with buildings which have been the puzzle and admiration of Englishmen during the last hundred years?

Western Europe in the Middle Ages.

Architects who have seen a village or a small town situated on the site of an ancient building or within its ruins; those who have seen the walls of peasants' cottages composed of moulded stone or squared blocks of granite, can realise the appearance of a city in Italy or southern France about the ninth and tenth centuries. It was constructed very largely of old materials placed one over the other, not without some thought of external effect. From Rome downwards all the cities of the Empire went through this experience. Given the plan of a church, with instructions to put into the building so many windows, doors, and arches, so many columns, and having raised the walls to a certain height to cover it with a vault, local artists obtained for the various purposes indicated ready-made materials from neighbouring old and disused buildings. The theatres, triumphal arches, baths, the tombs and other monuments of Roman magnificence, were dismantled, and the materials of which they were composed used for the earlier churches. In the older cities of Provence and other parts of southern France, huge blocks of stone perfectly worked, lofty columns of vast dimensions, elegant mouldings, and capitals of refined execution, are to be seen in the more primitive churches; and they astonish the beholder by the grandeur of their appearance in the midst of a semi-barbarous medley of construction. Indeed the vastness which distinguishes the French cathedrals, as compared with the English cathedrals, is mainly due to the fact that the legacy left to France by the Romans was far larger than that which they left to us. When, in the middle of the thirteenth century, the style evolved out of the constructive methods employed by or forced upon the earlier Mediæval builders attained perfection, an expert, with the training which a modern archæologist undergoes, might have easily traced the origin of every portion of a cathedral from some ancient building in the neighbourhood, or within a certain area of territory.

The principles of construction adopted in the ecclesiastical edifices of the Middle Ages are similar in France and England, and identical from period to period in buildings which are a thousand miles distant from each other, and which were erected almost at the same time. If one takes the early cathedrals, it will be found that, whether in France or England, or in other parts of western Europe, they are all of the same general model, and must consequently have been erected from a common plan. This plan was one accepted by the Church, and it was worked out at a common centre, probably at Cluny. Moreover, when at subsequent periods, prior to the fourteenth century,* most, if not all, the cathedrals of western Europe were enlarged and beautified, the form of arrangement, the principal constructive features, even the ornaments, were similar, as many buildings, situated at a great distance from each other, suffice to testify. In the Middle Ages a central institution, through its innumerable branches, guided the masters and artists, just as, at the present time, a Government department in India issues the plan and elevation of Barracks to be erected in different parts of the Indian Empire, with instructions to different local superintendents to use the materials at their immediate disposal, and to employ the workmen of their respective localities in the execution of the work.

One who would realise what the face of western Europe must have been like in the Middle Ages should travel in those parts of India but slightly inhabited by Europeans, where there are still many walled cities and fortified hamlets; or in China, which still abounds in Buddhist monasteries. Let us imagine a vast plain, with here and there jungle or forest marsh or morass, and as far as the eye can reach no trace of a substantial dwelling. The road is a jagged series of tracks, over which at distant intervals a horseman may trot or gallop, a palanquin or a litter with a lady and her child may by borne by runners and accompanied by horsemen, friars may be walking, merchants, pedlars with goods for sale, may be seen, each with an escort proportionate to his rank. Travellers in such localities accept the risks of robbery and murder; and on the great highways of Europe in Mediæval days men had to protect themselves and each other as best they could. Imagine, therefore, the delight with which, then, a traveller saw in the distance a tower or a spire—the encouragement it afforded to him, the influence upon his senses caused by the distant sound of a peal of bells! Within that inclosure, the existence of which afar off was thus proclaimed, he sought and found a lodging for the night, meat and drink after the labours of the day; and, if he were poor, alms with which to continue his journey. The stranger within the gates of such a building, or group of buildings, enjoyed not only hospitality and rest for his body, but also intellectual recreation. The sculptures, both on the outside and inside of the various edifices composing an abbey or a monastery, formed an exhibition which he could perfectly understand. Paintings on the walls and windows, on the roofs and floors, were all illustrations of the sole and universal story of Christendom, told in a diversity of ways—illustrations that, in times when the great mass of both gentle and simple could neither read nor write, were graphic renderings of a common living language, with which the teaching and preaching of the period made even the humblest familiar.

Whatever opinions may be now entertained respecting the aims or character of the Roman Church, it is certain that without its fostering care during the Middle Ages the moderns would have known very little of the ancient civilisation. The pagan authors were diligently studied within the cloister, and copied and recopied by monastic scribes, who thus filled the libraries pertaining to the several abbeys with MSS., the publication of which, by the aid of rude printing-presses, assisted the great intellectual movement of the fifteenth century in Italy, and of the sixteenth in France and England.

* Macaulay shows that early in the thirteenth century "commences the history of the English nation," and that one hundred years later "the amalgamation of the races was all but complete." ("Hist. of England," i., ch. i.) It was not until the fourteenth century that architecture in England became definitely Anglicised.—W. H. W.

The Fifteenth and Sixteenth Centuries.

The stir amongst the artists of Italy in the fifteenth century, which has furnished the text of numerous books on the Renaissance, much more resembled, I humbly think, development or renovation than revival. The Italians never entirely lost the practice of the arts between the time of Diocletian, and his palace at Spalato, and the time of Bramante, who flourished nearly 400 years ago. Serlio, who inherited the designs and other papers of one of Bramante's pupils, published, in the middle of the sixteenth century, a work which has served as the model for many similar works in all the western countries of Europe. Palladio about the same period was studying Vitruvius and Alberti, and he made plans of all the great public baths of the ancients which he could find, and which were in fair preservation in his day. All the great works of architecture executed during the fifteenth century in Italy were adorned with paintings and sculptures by the hands of the best painters and sculptors of the period; and the numerous pupils of these masters formed schools whose works have been ever since the admiration of the world.

The eminence of the Italian masters, and the fame of the great buildings which abounded in Italy, caused many Frenchmen and Englishmen of distinction, and many travellers of all countries, to visit the Italian cities, whence they sent home tales of the wealth and beauty of the materials which composed the principal palaces and churches. Italian architects and sculptors returned the visit, and some were induced to stay in France. Vignola practised and died there, and his work on architecture has always been to the French what Palladio's work was to the English. The literature studied in Europe during the fifteenth and sixteenth centuries was classical, and the language in which scholars conveyed their thoughts to the world, was Latin. During the reigns of Mary and Elizabeth young ladies of distinction read and wrote Latin, for it was not until many years afterwards that the classical works which the monks had preserved were "Englished out of Latin." The architecture of the time was illustrated—that is to say, the phonetic arts which help to compose a great work of architecture were made to tell the classical story of gods and goddesses, satyrs and nymphs, fates and graces, of pagan creation; and this story was consonant with the general current of conversation and the feeling or affectation of the age. Vast numbers of Italians and Spaniards flocked to England in Queen Mary's time, and the chief poems and romances were translations from the Italian. Inigo Jones, whose Christian name possesses an Italian flavour, made several visits to Italy. Many of the tombs with which the churches and cathedrals, especially in this country, were then filled were executed by Italian workmen. The deep interest taken in the arts during the sixteenth and seventeenth centuries by the ruling class of France,—partly, no doubt, from motives of ostentation,—is shown in the books of the time, and the dedications they contain to great personages. The country palaces and chateaux of the nobility then designed and erected were adorned with sculptures and paintings, and surrounded with gardens, fountains, and waterfalls. The vast town-houses which they possessed were equally spacious, with courtyards in front and gardens behind. Absolute harmony of design was maintained both in the exteriors and the interiors of these buildings; and for more than a hundred years the developments of the style which mark the epoch of Louis XIV. and his two successors were pre-eminent throughout Europe.

Three Epochs.

Three distinct epochs of intellectual activity in the great arts can be defined, especially in England. Roundly stated, they occurred in the years 1250, 1550, and 1850, thus leaving a lapse of three hundred years between each. During the *first epoch* the artists drew their inspirations from solid remains of great edifices which had survived the fall of Roman power and the subsequent struggles of the various peoples that composed the Roman Empire. A child's game of house-building with small cubes of wood, played by real workmen with blocks of stone torn from existing buildings, affords an insight into the process by which the forms and details of the earliest abbeys and cathedrals were evolved. This process, or these processes, were afterwards regulated or systematised, and then directed within certain grooves by a great central institution, which in its turn acknowledged the supremacy of a universal power stationed in the ancient capital of Rome. During the *second epoch* artistic inspiration was aroused partly by the study of ancient and Mediæval MSS., which had been previously restricted to the use of the monks, but which were at length open to all who could read. The MSS. were copies principally of the works of Roman writers, some of them transcribed in low Latin, no doubt, but perfectly intelligible to the upper classes of French and English. A translation of Vitruvius published in Paris in 1547, in the French vernacular, contains a kind of apology that it is intended for workmen and others who do not understand Latin. The movement of the sixteenth century was largely influenced by the voyages to foreign lands, the influx of foreigners in the various European capitals, and the conviction, which had suddenly seized upon ambitious imaginations, that the world was bigger, and contained more in it, than the decaying Church had been willing to admit. During the *third epoch*—that of the present century—artistic inspiration has been sought and derived mainly from printed books and illustrations, the art of photography having largely contributed to increase the general confusion of published precedents—and this in spite of extraordinary facilities of travel and almost equally extraordinary efforts of draughtsmanship.

The *first* of these movements, that of the thirteenth century, was a practical, general manifestation of artistic vigour. The *second*, in the sixteenth century, was a studious relaxation of religious discipline, a mental demonstration which affected everything that contributed to the enjoyment of life, from a Royal decree to a piece of buffoonery. The *third*, in our own time, has been mainly pictorial and scenic,—an affair of sentiment, fashion, and party-spirit, confined to only a portion of the community at large.

The term "Artist."

The very word "artist," in the course of the last hundred and twenty years, has obtained a meaning different from that it possessed during the preceding seventeen or more centuries. In low Latin, in Italian, in Spanish, the word *artista* meant one who exercised a mechanical art. Dr. Johnson, the first edition of whose Dictionary was published about the year 1754, defined an artist as the professor of an art, generally of an art manual; he also defined "artificer" and "artisan" as artists. In other English Dictionaries of early date "artist" is defined as one skilled in an art or a trade; and "artificer" or "artisan" as an artist or a mechanic, one who is skilled in any art, mystery, or trade, a handicraftsman. But in the year 1762 the literary autocrats of the Académie Française, in their great dictionary, so altered the old meaning of the word "artist" that it has come to be applied, both in France and England, solely to a person of æsthetic training and acquirements—one who draws, or paints, or models, or who makes designs on paper for buildings, furniture, jewelry, &c. One hears now such compounds as "artist-architect," or "art-workman," used by gentlemen and ladies who are immensely amused when a hairdresser calls himself an "artist in hair," a vain denomination to which he is traditionally entitled; and the "art tailors" of Bond-street have as much justification for their compound title as the self-styled "art-architects." Indeed, I have often wondered that practitioners of the lower arts should be allowed to monopolise the title of "workman," seeing that every Englishman who is worth anything at all, is or has been a working man. But a musician appears to be excluded from the fraternity of British artists; he or she, as the case may be, is called *artiste*, with an "*e*," and the word is printed in the italic character to show that it has been appropriated from a source other than the pure well of English undefiled.

Foreign Artists in England.

The periodical immigration of foreigners into this country, due to various causes, religious and political rather than commercial, has contributed in no small degree to enlarge its artistic capacities and develop its artistic sense. After the fall of the Roman Church in England, the condition of the arts was worse here than in any other part of western Europe. We had routed them from their original homes, and compelled them to seek miserable lodgings anywhere and anyhow. We set up no new institutions in the place of those we had destroyed, and after the excitement of the sixteenth century had subsided in England, a century of native inaction, as far as the arts were concerned, followed. The nobility, who had the means of knowing what the artists of Italy, France, and Flanders were doing, sent to obtain their advice and assistance. In the days of the Stuarts, when a further influx of foreigners took place, the chief artists employed in England were not English, though some of them bore English titles and became anglicised in name and language. Sir Anthony Vandyck, Sir Peter Lely, Sir Godfrey Kneller, were foreigners who worked in England. The design of the numerous churches, the erection of which was superintended by Sir Christopher Wren, was, I feel sure, largely due to foreign assistance—for after carefully looking at some of Wren's works, and after comparing them with particular buildings erected a short time previously in Venice,—which Wren had never visited,—one is struck with marked resemblances in type and detail. Sir John Vanbrugh was of foreign lineage; the magnificence of his architectonic conceptions, the character of the works executed under his direction, betray their French origin, and the details prove it. Then there were the two brothers Adam, the "adelphi" who gave names to a series of London streets lying between the Thames and the Strand, and whose delicate designs for plaster ornamentation burst suddenly upon the town. The art which made them is known to have been the work of Italians whom the brothers employed, and it expired with the few pupils they left behind. Sir William Chambers was not born an Englishman, and many of his draughtsmen,—some of whom worked on the drawings of Somerset House,—were foreigners. If one carefully examine the English illustrated books on the arts, especially architecture, published during the last century, one finds that the names of the draughtsmen and of the engravers are almost invariably foreign, while the character of the work is entirely French. At the commencement of the Queen's reign Italians employed at the Mint executed the beautiful coins which bear her Majesty's image and superscription; and I think it may be fairly admitted that until the year of Jubilee, 1887, no Englishman had reason to be ashamed of the artistic character of his country's coinage. Even at the present day some of the Royal Academicians are foreigners, or of foreign lineage.

The Great Arts To-day.

I have attempted to realise, by an imperfect description, the feelings of the Mediæval traveller on first catching sight of a tower or a spire; and even now when, halfway on the road—an ancient Roman one—between Dover and Canterbury, one gets a first glimpse of the cathedral towers, the effect—especially in the sunlight on a summer's day—is very charming and inspiriting. But what must it have been to the worn and footsore, in all weathers, five hundred years ago? They knew that those towers marked the existence of a glorious and beautiful home of refuge and delight, where bed and board, and alms with which to continue the journey to Rochester and London, would be obtained. It is impossible to doubt the sincerity with which a man, under such circumstances, cried out, "The Lord is my refuge," "In His courts is peace," or "I was glad when they said unto me, Let us go unto the house of the Lord." When there now, once a week, one repeats those phrases as a sentimental exercise for spiritual comfort; but in the Middle Ages they possessed a definite meaning, conveying a recognition of substantial benefits received.

Again, the towers of a Mediæval fortress were absolutely essential to its defence. A tower in those days was also often necessary to hold aloft a sun-dial, which was not only convenient but absolutely essential to every inhabitant of the town or village in which it was placed. But, at the present time, men consult their watches in preference to the town clock, or even that bell which every quarter of an hour during the session irritates the House of Commons; and modern fortresses are built to show little masonry or brickwork for big guns to attack—a tall tower being the very first thing in a siege to carry destruction into the ranks of its defenders. Nevertheless, few public, few large private buildings, are now considered complete without towers, some of which are erected for absolutely no purpose whatsoever;

and all are intended, in a technic as well as an æsthetic sense, to "break the sky-line" of the building. But I am bold enough to believe that no Græco-Roman artist, no Mediæval artist, ever of malice aforethought broke the sky-line of his buildings; or intentionally so grouped them as to secure what, in this pictorial and scenic epoch, is called a picturesque outline. If one study minutely the history of an old cathedral, both from written documents and from the evidence to be obtained of the building itself, it will be found that its course of life has been something like this. Early in the twelfth century (and sometimes earlier) it was erected and finished according to a general uniform plan, and in consonance with instructions received from headquarters. The masters who had the general direction of the artists engaged upon it were mainly ecclesiastics, and the master mason was the chief artist who worked on the building. Years afterwards, as population increased and civilisation advanced, a larger cathedral was required. Another plan was obtained from headquarters; and, without destroying the whole of the original building, additions were made to fit it to the new and enlarged plan, for I have no doubt in my own mind that the church services, which were then a principal part of the ordinary business of life, were carried on during the repairs. Ultimately, after the fourteenth century, for well known reasons, no more general uniform plans could be obtained, or they were not wanted. Additions or alterations were made by local artists as they were required. If a window did not give light enough, another and larger one was substituted, without any heed to what is now called "style." No attempt at what is now called "restoration" was made; and alterations were effected without regard to appearances, though the artists engaged expended their best talents upon the work. If a new chapel or chapter house, or any other adjunct was wanted, it was fitted on to the building in the place most convenient for its purpose; and, as a rule, the same happened to the municipal and the private edifices. The result was that, after three or more centuries of such alterations and additions, the cathedrals, the castles, the country-houses, which had survived successive periodical contests, presented outlines of the most picturesque description—outlines rendered, in later centures, still more picturesque from decay and wanton destruction.

The too enthusiastic study of Mediæval buildings in their ruined condition has partly led to the present methods of design. We have taken the plan and view of our cathedrals and churches as they came down to our forefathers of the sixteenth century, after three or more centuries of modification, and founded upon that plan and view the church and the cathedral of the present day. We have been utterly and wilfully oblivious of the regular and symmetrical form they both had in the plans of the thirteenth-century architect. We treat the modern country-house in the same fashion, and arrange a new building of our own time with every possible irregularity of outline, both vertical and horizontal, for the purpose of imitating effects which during the Middle Ages, and even later, grew naturally, or as circumstances demanded. Yet we are astonished that the shrewd British public fail to appreciate the true uses of architecture, that the run of a revived style barely lasts ten years, and that Governments desirous of erecting national monuments are as cautious in their dealings with artists as they are perplexed with the rapid changes of the artistic kaleidoscope. It was well said, three hundred years ago, "Nothing is lasting that is feigned; it will have another face than it had, ere long."

Then, as regards the employment of painting and sculpture in new churches, we give the enlightened world the same old versions, told in the same old way, of the once sole and universal story of Christendom. Does any one attempt to decipher them? Does any one ever try to read the sculptures upon the national and municipal buildings of the country? Does one ever ask oneself what the subject of most of them has to do with men and women of to day,—with the life of the present time? It may be possibly due to some such feeling that the public buildings of our time are very little indebted to sculptors for their adornment; and, as to the art of painting, the question with the government or a municipality, even in these days when the nation consents to spend 75,000*l.* upon a framed picture, concerns rather the number of coats of good oil paint to be used, than any subject to be portrayed, upon the walls.

Again, how do the once subsidiary arts of painting and sculpture use the liberty they have enjoyed in England since the sixteenth century? To study the progress they have made, one must go to an exhibition in London or Manchester, or some other big centre. There, after half a day spent in an agony of examination, equally divided between a catalogue of pictures and the pictures themselves, one retires with a sense of relief that such exhibitions are held only once a year; and if by accident a year be skipped, or even two years, the complaint is just loud enough to prove that, as a person of fashion, one wished to see the things that others say should be seen by the fashionable world. But take up a copy of the *Illustrated London News* or the *Graphic*. One is interested at once. It portrays current events, which make the history of the present time—the views of life as it passes before living eyes. Even in the late Madame Tussaud's Waxworks Exhibition the groups of men and women in whose fate and career one is and has been interested attract the artist and delight the crowd. But does an exhibition of modern sculpture cause delight? I cannot believe that a marble or bronze figure of a man, deprived of any architectonic surroundings, and perpetually fixed on a pedestal in the middle of a road or on the pavement, in fair weather and foul as we get it in this country, can ever delight or even interest the passers-by. Yet that represents the principle on which sculpture, freed from the tutelage of the master-art, is now invariably treated. If one could adopt only the spirit instead of the letter of the arts of former times, the ornamental parts of a new building, whether executed with a chisel or a brush, would be made perfectly intelligible to the mental capacities of ordinary people, and would relate to current events, to the habits and occupations, the sentiments and aspirations, of the living world. I feel convinced that this will again come to pass. I believe even that architecture, if professional education continue to be directed in its proper course, will re-assume its ancient pre-eminence as the master-art, and partly for reasons which are more political and social than artistic. Perhaps the youthful pluck of America, with its utter want of respect for the ties of tradition, may help the old country out of its present grooves. Bret Harte sounded the true note of emulation in the first verse of what "Miss Blanche Says," written and recited in Rochester, U.S.A., nearly twenty years ago:—

"And you are the poet, and so you want
Something—what is it?—a theme, a fancy?
Something or other the muse won't grant
In your old poetical necromancy.
Why one half you poets—you can't deny—
Don't know the muse when you chance to meet her,
But sit in your attics and mope and sigh
For a faineant goddess to drop from the sky,
When flesh and blood may be standing by
Quite at your service, should you but greet her."

Instead of "poet" I pray you read "artist," or the title of any other genius, and for "flesh and blood" substitute the life of the present day and the current events of human existence.

Present Worship of the Past.

It is, nevertheless, impossible to treat lightly the actual triumph of archæology, due principally to the researches of the present century. There is no building of any importance mentioned in Holy Writ or any historical MSS.,—though, perhaps, not a vestige of it remains,—that the archæologist is not prepared to entirely rebuild upon paper; and further, he will support every item of his restoration with accumulated references and analogies. Museums are full, all over the world, of archæological curiosities, some of which are valuable objects of workmanship, dug from the surface of the earth, and emanating from pre-historic as well as historic times. It is also equally impossible not to admire the archæological knowledge, the æsthetic and phonetic skill, with which a new building can be at once invested with the character and appearance of an old one. This ostentatious love of the old is a fashion that must run its course, and the loud objections now raised to rendering a dilapidated edifice fit for actual use will doubtless outlast the century,—the sentiment, of which both are born, having served a good purpose in the present epoch of artistic unreality. It is, however, obviously ephemereal, for it is opposed to the known traditions of every country and every age in which the great arts have flourished and progressed.

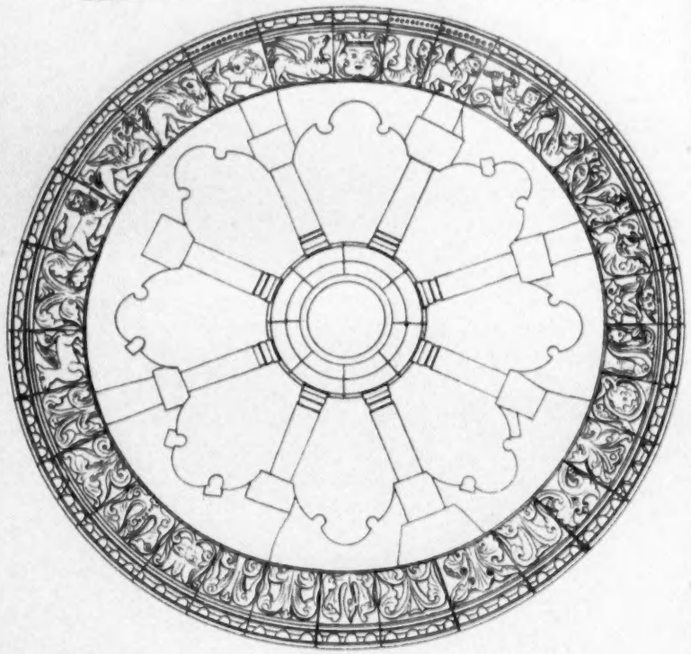
To this worship of the Past,—to the belief half expressed even by intellectual critics that there were once men, not absolutely giants, who did things that cannot be done now,—may be attributed some of the diffidence with which the authorities in this country regard an architect, however talented or experienced he may be. This architect, perhaps, erects leasehold dwelling-houses which come to pieces after the wear of sixty or eighty or 100 years, and his critics seriously remind him that the Pantheon at Rome has endured for at least fourteen centuries. They conclude that the domestic architecture which adorned the Imperial City was executed with strength and beauty equal to the strength and beauty still visible in the few great monuments that have survived the attacks of Time and men. But architects know that if certain temples and amphitheatres are still standing, it is because they were built with extraordinary skill and strength. If buildings which once surrounded them have disappeared, it is often because they were not better built than those of the present day. The vast majority of the dwellings in ancient cities were not as well built as are those of our own time, and hardly a vestige of them has come down to us. Indeed, with the fear of an old anecdote before me, I do not hesitate to believe that the Romans made a vast amount of worthless mortar, which, like all the other rubbish of Mediæval builders, has disappeared. Lord Byron put the matter very neatly when he wrote—

Out upon Time, that never canst leave
But enough of the past for the future to grieve!

Female Competition.

A noble feature is said by competent persons to await the arts of this country, and although no man ought to prophesy unless he knows, let me add, in concluding this Paper, a surmise as to the future. Since 1851 the State has expended money for the purpose of assisting the technic artist; the City and Guilds of London have also come to his assistance. Moreover, the architects, unaided by the State, have by their own energy, and with their own money, progressed according to their lights quite as fast as those who practise the lower arts. Much more is known at the present day of architectural history, and of the monuments of the world, than at any previous period of the national existence, and the power of artistic delineation recently acquired is amazing. What must come to pass before any real benefit can accrue from all this knowledge and skill is a closer relation between the technic, æsthetic, and phonetic artists, and between them and the architect. To secure this, the technic artists must rise in the social scale; indeed, measures are ripening which must take effect slowly, and be but slightly perceived at the time, to advance the skilled craftsman. Somewhere in the next century—and the present one has only nine more years to run—the male monopolist will have to contend with female competition, at least in all those callings or occupations that are considered "genteel"; or, in better language, in all the gentle arts. In Europe, less than a thousand years ago, men practised those arts which for the last three hundred years have been almost exclusively practised by women; and, at the present time, among the Eastern nations, all such arts are still the exclusive patrimony of men. But about a year ago I read in the *Times* a telegram from Calcutta, stating that "at the last primary scholarship examinations in Bengal eight out of twenty scholarships were awarded to girls." What a revolution of thought is concealed in those words! This was not in Bombay, among the commercial Parsees, nor in Madras, where the progress of native education is favoured by absence of caste prejudices, but in Bengal, among the Hindus, whose women are kept under lock and key with even greater strictness than was used by the ancient Greeks! As for England, the schools of art and the art academies show almost as many female students as male students; and in all the annual distributions of prizes at the Royal Academy and other similar institutions, and even at the technical schools, the young women came up to receive their prizes with the young men quite as a matter of course, or without attracting undue observation. In point of fact, out of a total of 2,119 exhibits in the Royal Academy Exhibition of last May, some 400 were by women; and one-fourth of the exhibits contributed by outsiders were by women. It may be confidently pre-

Barfrestone Chvrch. - Kent



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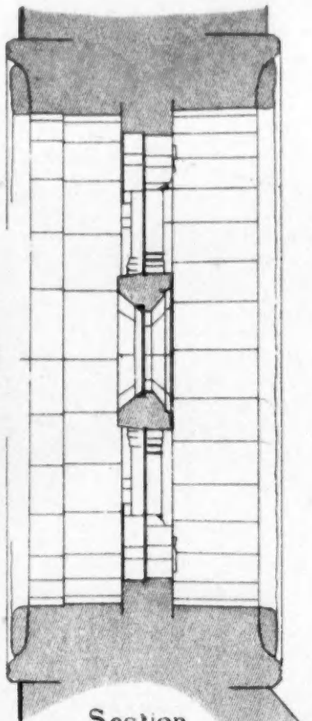

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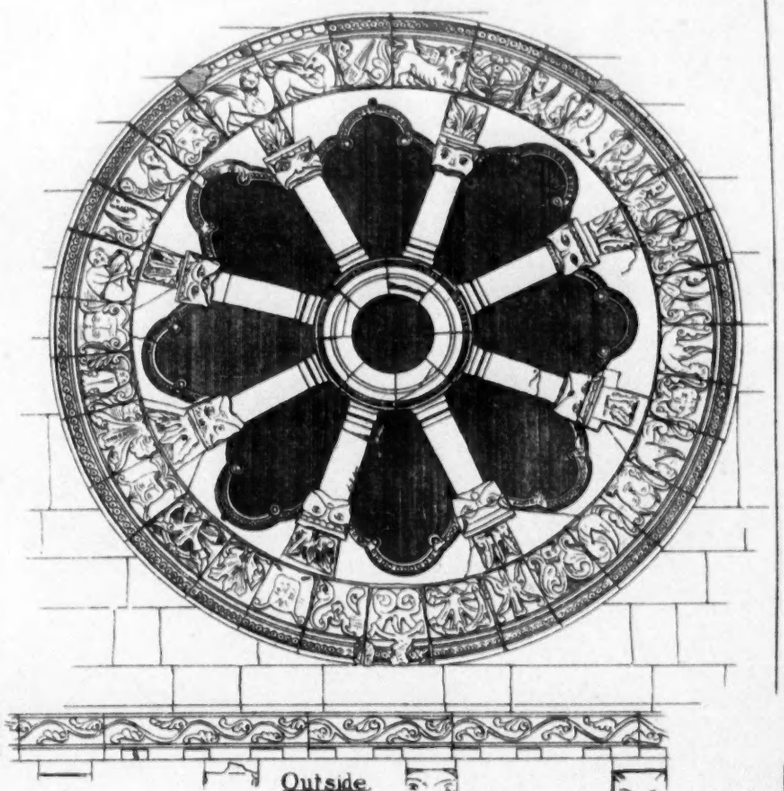
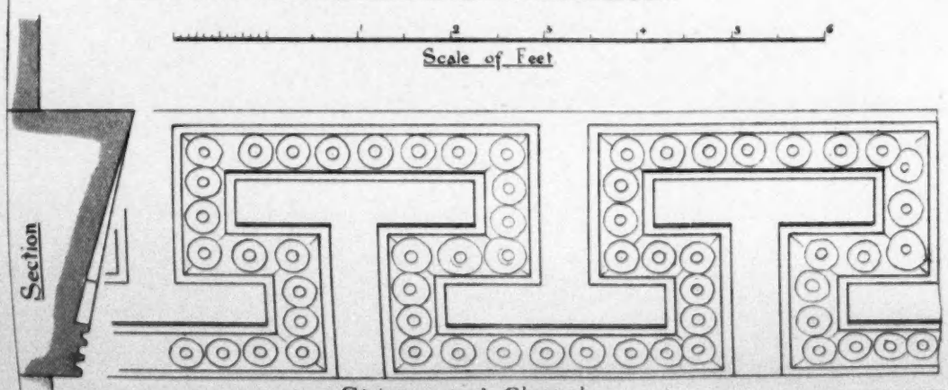


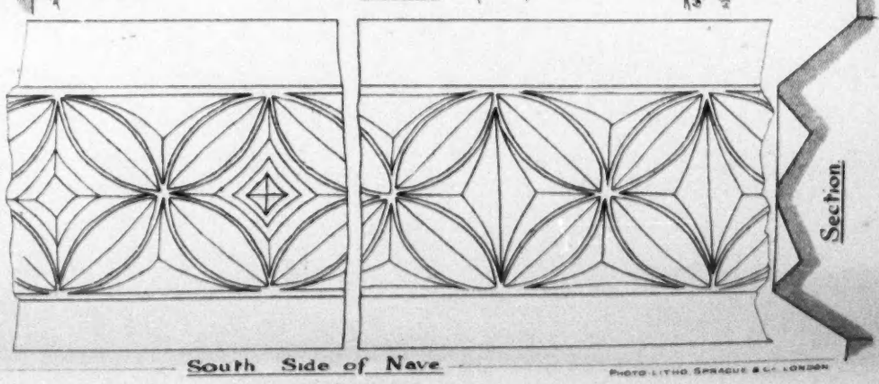
Outside.

Circvlar Window in East End.

Scale of Feet



String round Chancel



South Side of Nave

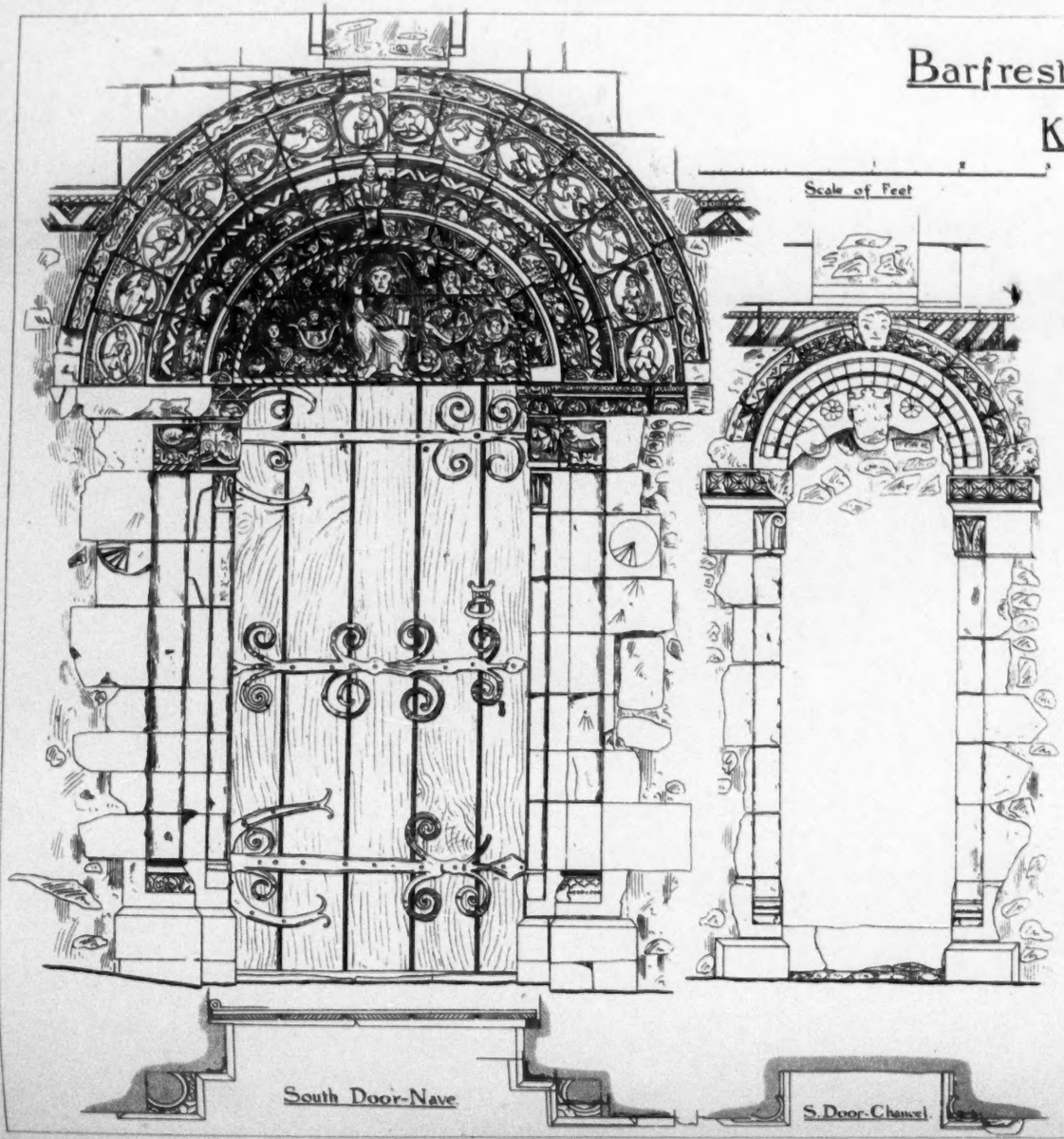
PHOTO-LITHO. SPRAGUE & Co. LONDON.

String round Chancel

South Side of Nave

PHOTO-LITHO SPRAGUS & Cº LONDON

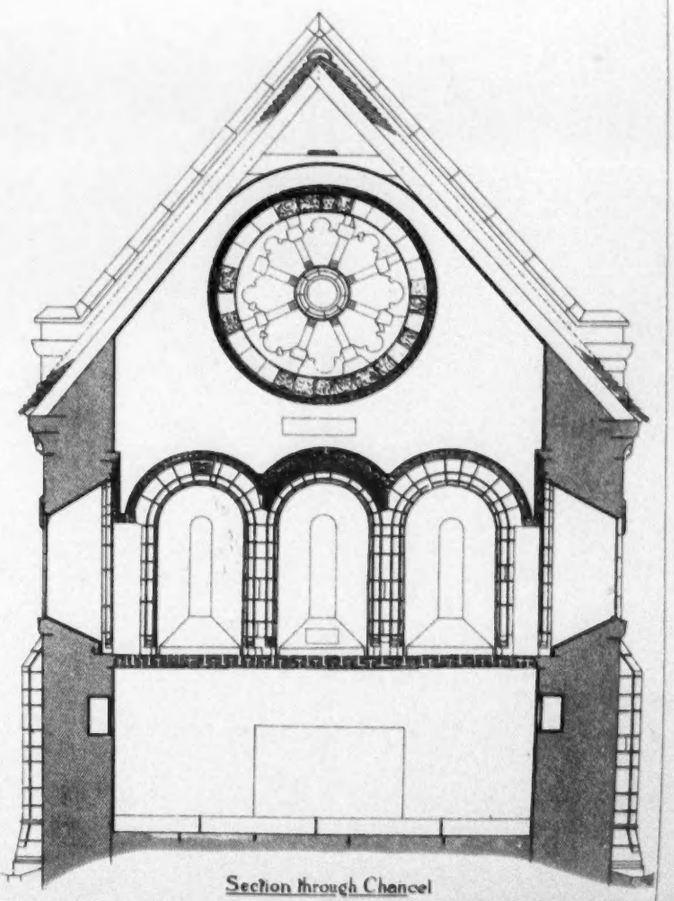
Barfrestone Church.
Kent.



Scale of Feet

South Door-Nave

S. Door-Chancel



Section through Chancel

Scale of Feet

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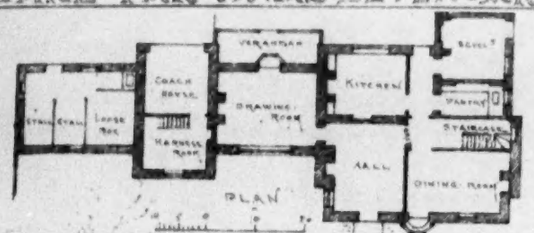
STAKE FARM, NEAR SEVENOAKS, KENT

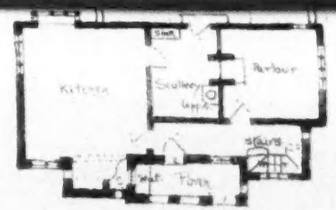


FRED M. SIMPSON
ARCH. & DEL.
1890.

[Ink PHOTO, SPRAGUE & CO., 44, MARTINS LANE, CANNON ST., LONDON, E.C.

PART OF DECORATIVE PAINTING AT RED CROSS HALL, SOUTHWARK.—By Mr. Walter Crane.

GAMEKEEPER'S-LODGE.
SIDBURY - SIDMOUTH.
Walter F. Cave - Architect.
8 George St. Portman Sq. 1889

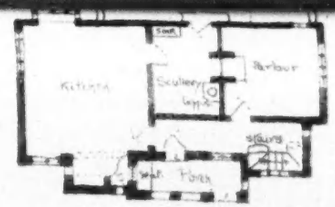


Ground Plan.

"INK PHOTO" SPRAGUE & Co. 22 MARTINS LANE CANNON ST. LONDON, E.C.

Royal Academy Exhibition, 1890.

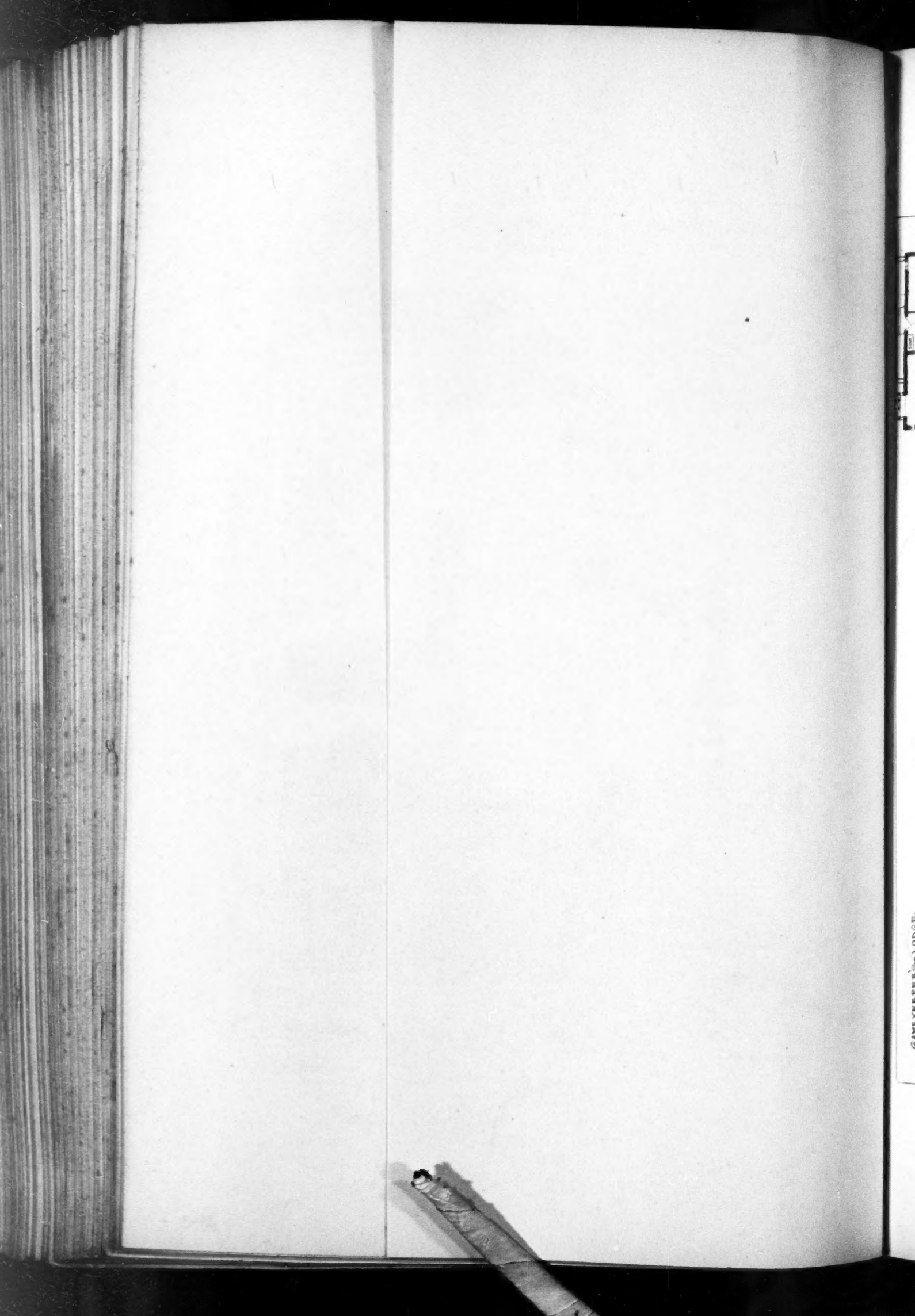
GAMEKEEPER'S-LODGE
SIDBURY - SIDMOUTH -
Walter F. Cave - Architect.
8 George St. Portman Sq. 1889



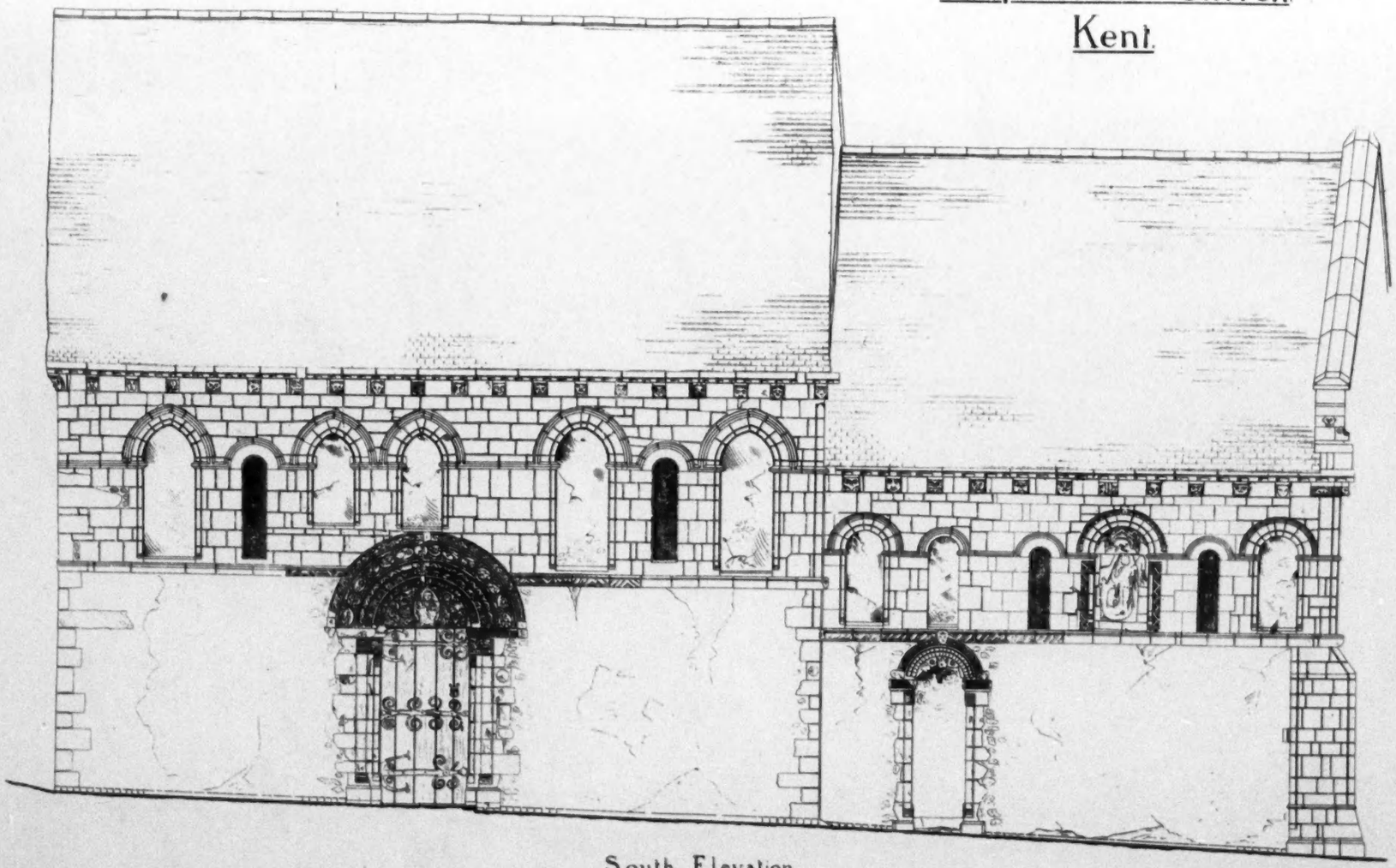
Ground Plan.

"INK PHOTO" SPRAGUE & Co. 48 MARTINS LANE CANNON ST LONDON E.C.

Royal Academy Exhibition, 1890.



Barfrestone Chvrch
Kent.



South Elevation.

Scale of Feet

PHOTO-LITHO. SPRAGUE & CO. 52, MARTIN'S LANE, CANNON ST., LONDON, E.C.

Barfrestone Church
Kent.

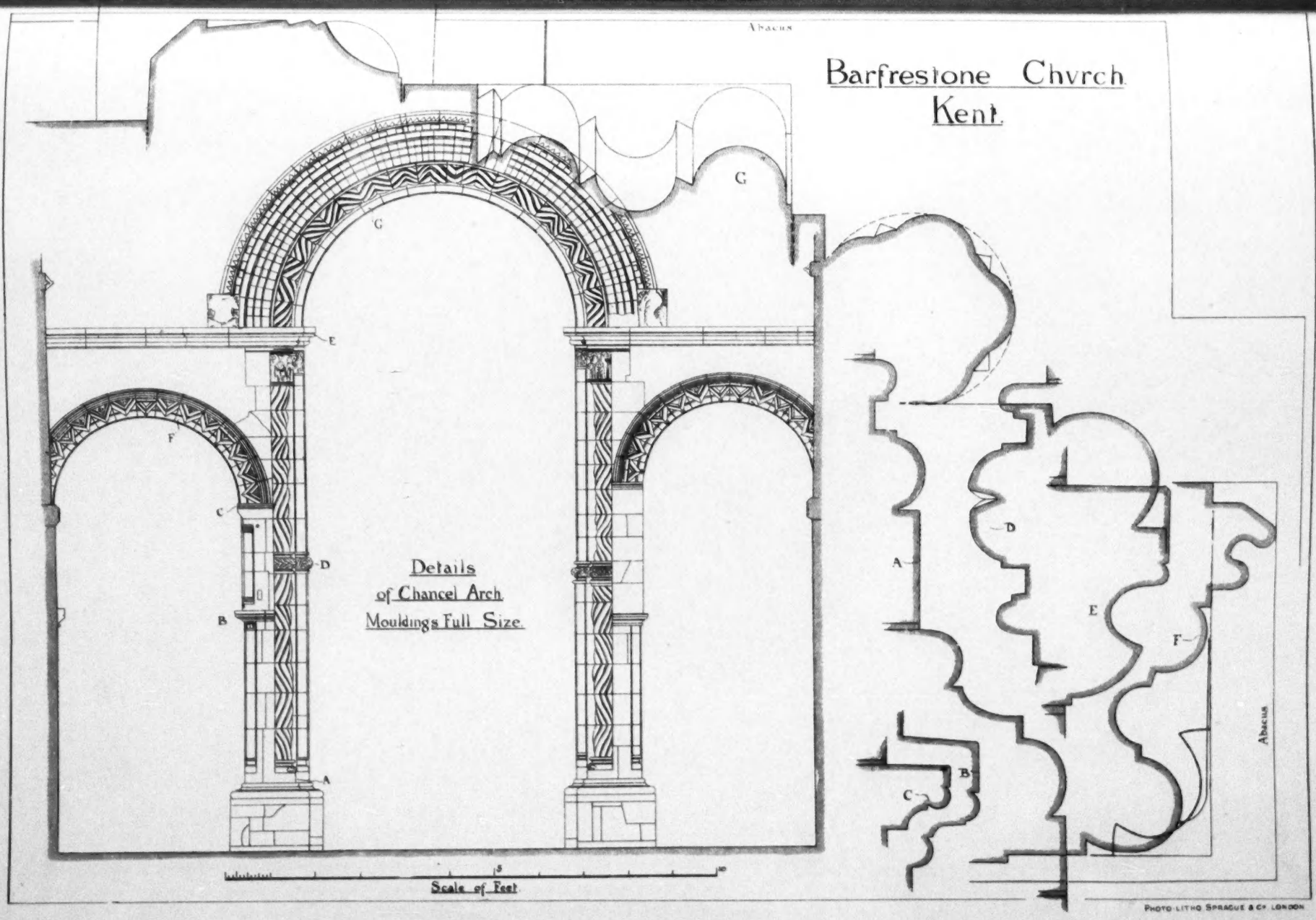
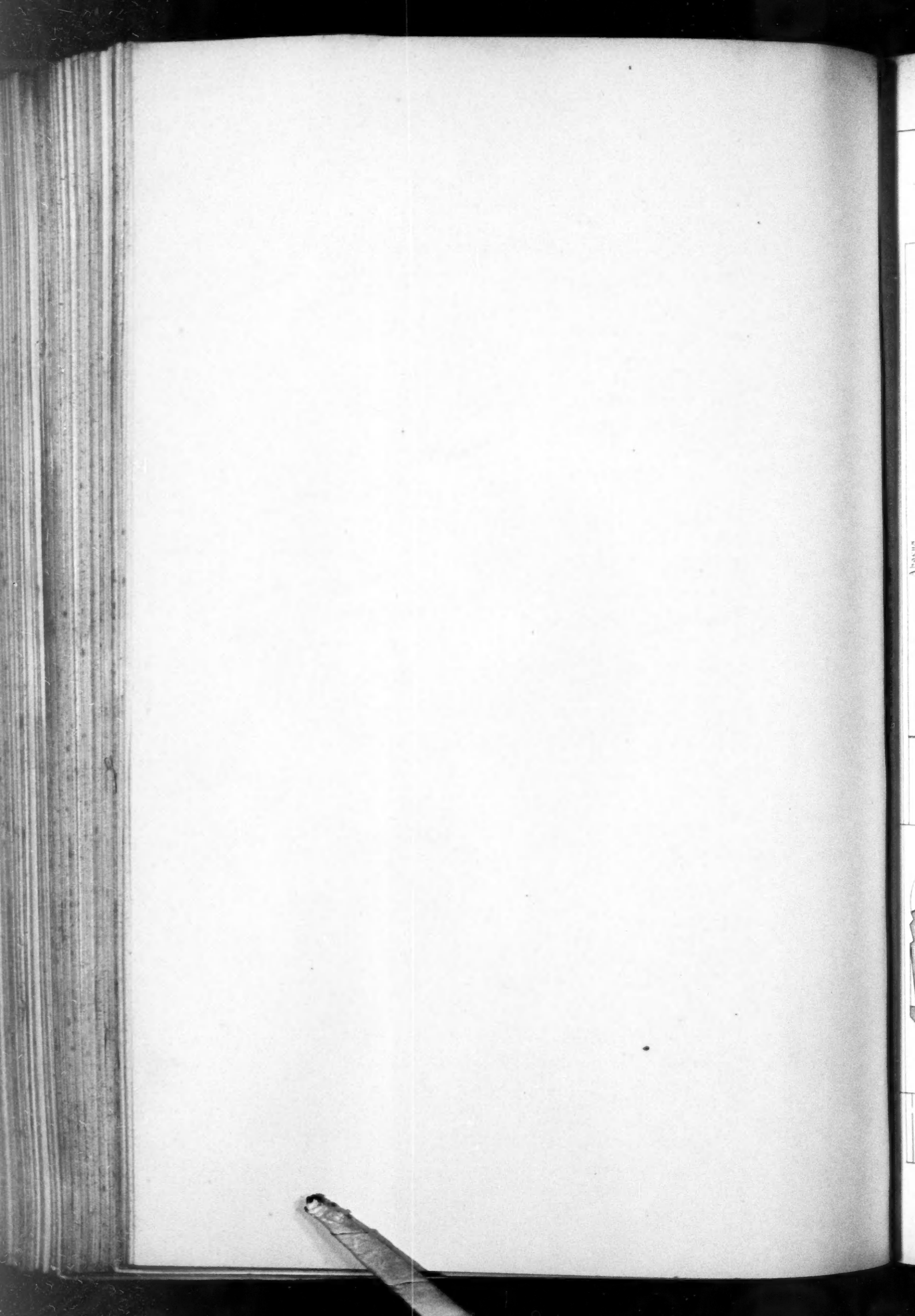


PHOTO-LITHO SPRAGUE & Co LONDON



dicted that such gentle arts as painting and what is still called sculpture — but which is really only modelling — and design of every kind will eventually be practised by women, to the ultimate exclusion of men; that, in fact, the designer, pure and simple,—who now often fancies himself an architect,—will be sorely pressed by the "softer man" in their mutual struggle for existence; and that, consequently, the masculine arts of construction will regain the consideration attached to their practice in Roman and mediæval times. Masonry, carpentry, plumbing, wrought-iron work, and other such handicrafts, or arts as they used to be called, will be practised by educated men; and men of imperfect education, who are not skilled in such arts—who have no better knowledge of them than the ordinary unionist of to-day—will be relegated to their proper position of labourers. The sciences will not be much affected by female competition, and if what was once the master-art can maintain its original place among the sciences—if the fatal notion that draughtsmanship suffices to make an architect can be entirely dispelled—architecture may yet successfully resist the blandishments of the better half of human kind.

Fergusson's Three Points.

More than a generation ago, the late James Fergusson,—whose line of argument will probably be better appreciated in the next century than it was understood in his lifetime,—began the book which he called the best he had ever written, by an allusion to the bold paradox of Rousseau,—

"That the sciences and the arts had served only to debase and corrupt mankind, and that almost all the vices incidental to a state of civilisation could be traced to their pernicious influence."

But Fergusson replied,—

"Cultivate the sciences and the arts. No . . . . real and permanent good can be effected except from an improvement of knowledge; no higher or more elevated tone can be given on the all-important subjects of morals or religion, except by imparting a higher degree of refinement, and a better appreciation of the purely beautiful, to the public mind."

In the same book, in a chapter on the Prospects of Art, he showed briefly the principal points to which he believed attention should be directed. "The *first*," he wrote,

"Is to restore to art its progressive vitality, or, in other words, to give up all imitation of past styles, and to start at once with the determination to surpass all that has hitherto been done—to progress towards a degree of perfection that has not hitherto been reached. The *second* is to enlist a higher order of minds in the practice of the arts, or at least a higher class in society than has hitherto condescended to interfere with them. The *third* is to fit them with some higher aim than merely to please the dilettante or the connoisseur; for they must teach and elevate, or themselves suffer degradation."

[Some notes of the discussion which followed will be found on another page.]

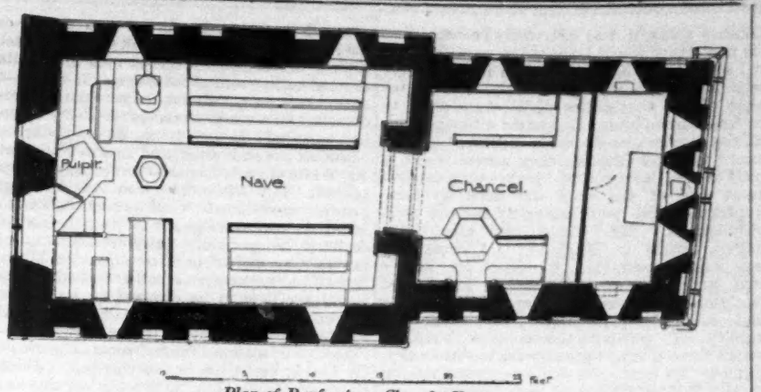
Illustrations.

DECORATIVE PAINTING, RED CROSS HALL, SOUTHWARK.

A SERIES of panels, about 6 ft. by 11 ft. high, has been designed by Mr. Walter Crane to decorate the above hall, which has already been illustrated in this journal (interior view, Nov. 9, 1889). The first panel, illustrated in this number, has been painted from Mr. Crane's design and under his superintendence by Mrs. Russell Barrington, for the recess on the left-hand, near the entrance to the Hall. It is intended to commemorate an action well worth commemorating in painting, viz.: the courage and self-devotion of the servant-maid Alice Ayres, who in 1885 sacrificed her own life in saving those of her master's children at a fire in Gravel-lane, when she refused the means of escape herself till she had three times deliberately gone back into the burning house to bring the children out one after another, and was too exhausted to save herself, and fell on the pavement and died shortly after she was taken to the hospital.

Some of our readers will remember the incident, which made a great impression at the time; and we are glad to hear that such a noble subject from real life has been selected as a wall decoration; a subject which is peculiarly suitable in a hall intended for use by the poorer classes, as showing how heroic deeds may be done, even by those in a humble position, who are faithful to the idea of duty. The subject was suggested, we are informed, by Mr. G. F. Watts, but we may feel sure it is one which Mr. Walter Crane would work at *con amore*.

Similar deeds of heroism in humble life are to form the other subjects, nine in all, with which the Red Cross Hall will ultimately, it is hoped, be decorated.



Plan of Barfrestone Church, Kent.

BARFRESTONE CHURCH, KENT.

THE measured drawings of this curious little Norman church, published in this number, were made by Mr. Alan C. Walker, a young Australian architect, during a visit to England to study English architecture *in situ*. It would be very desirable if more of the profession in Australia would spare time to come over and study the ancient architecture of the mother country, not by any means because we wish them to copy it, but because of the educating effect of the study of ancient architecture, of which the inhabitants of a country where there is no ancient architecture are deprived. The Americans are now producing very picturesque modern buildings, but they never did so until it became the habit of their architects to study and draw ancient European monuments. The Australians, as far as we may judge from illustrations of their architecture which reach us from time to time, are now in the same position in which the Americans were a quarter of a century ago; they have no architecture except bald repetitions of modern Renaissance work.

Mr. A. C. Walker has therefore set a good example to his contemporaries at home, and at the same time has produced a set of measured drawings which are of interest to English architects as a record of the peculiarities of a rather exceptional old monument.

There is a curious semi-Celtic appearance about some of the ornament which seems to indicate some special influence at work in the erection of the church, which has two other notable peculiarities, the curious irregularity in the setting out of the walls (as shown in the subjoined plan), and the fact that the wall arcading on the south side of the nave shows slightly pointed arches, a very peculiar incident, as it is generally found that merely ornamental arches in Transitional buildings remained round-headed for some time after the larger constructive arches had assumed the pointed form for constructional reasons. The curious skew in the plan has been accounted for by a suggestion that the church was built with stones brought from other places and which had been used in some previous building; this may be the case in regard to the decorative heading of the south door of the nave, which has very much the appearance of a later insertion; but the crookedness of the plan may be sufficiently accounted for as clumsy and careless setting-out on the part of some rude local masons, in all probability.

Partly owing to this crooked character there is an impression of early simplicity about the building which inclines one at first sight to regard it as earlier than it really is; an examination of the details, especially the moulding and carving of the capitals of the chancel arch, show that one can hardly give it an earlier date than 1100.

STAKE FARM, NEAR SEVENOAKS.

THE alterations, &c., to this cottage consisted in removing the front door from the centre and throwing the entrance-passage into the dining-room, turning the drawing-room into the hall, and converting the existing cowshed adjoining into the drawing-room, with new bedroom and dressing-room over, fitting up stables and new drainage, plumbing, heating, painting, &c., throughout. The architect was Mr. Fred M. Simpson, of Westminster, and Mr. Edward Punnett, of Tonbridge, was the builder.

GAMEKEEPER'S COTTAGE, SIDBURY.

THIS lodge is built in red brick and Ham Hill stone, with dog-kennels and pheasant sitting-house attached. It is roofed in red tiles, and the work was carried out by the workmen of the estate. The architect is Mr. Walter F. Cave, and the drawing from which the illustration is taken was exhibited in this year's Royal Academy Exhibition.

THE ARCHITECTURAL ASSOCIATION.

THE fourth meeting of this Association for the present session was held on Friday, the 28th ult., at 9, Conduit-street; Mr. Leonard Stokes, President, in the chair.

The minutes of the previous meeting having been read and confirmed, the following gentlemen were elected members of the Association:—Messrs. E. S. Collins, E. L. Harrison, E. Jessop, G. B. Macdona, G. A. Kerr, and A. H. Carter.

The Chairman stated that there had been no other nomination than the nomination by the Committee of Mr. P. J. Marvin to fill the vacancy on the Committee caused by the resignation of Mr. F. Hooper.

Mr. Marvin was then duly elected.

Mr. William H. White then read a paper on "Arts and Artists in Former Times and To-day," which we print on another page.

Mr. John Slater, in proposing a vote of thanks to Mr. White, said he was sure they had listened with the greatest interest to the very instructive and amusing paper which Mr. White had read. They had had a most interesting excursion into the past. Mr. White had touched upon a great many topics that many of them, at one time or another, had thought about; but he had brought them together, and put them in such an interesting way, that he (the speaker) was sure they could not be other than extremely obliged to him. He had often been struck in thinking over Mediæval times, with the wonderful facility which undoubtedly did exist in those times for people to get about all over Europe. It was very surprising indeed at first sight; but he supposed the people who travelled then did not carry very much of their wealth with them. Most of those who travelled were not rich men, and consequently they were not so afraid of being robbed of their property as of being detained themselves, and made to work at their special craft for the benefit of those who detained them. There was no doubt that many of the little Italian towns known in the history of art, detained a painter or sculptor in that way, and kept him and made good use of him. Mr. White had very accurately described the influence of the Roman Catholic Church in the promotion of the arts. The monasteries were really missionary bodies in the true sense of the word; they were continually sending out people to teach not only the little learning that was then taught, but all the technic arts. And there was no doubt that there was much intercourse between the various countries and monasteries; and if any one monastery had an exceedingly good master mason, when a cathedral was to be built some

distance away, it was extremely probable that the monastery would be asked to send that man and some labourers to assist in building that cathedral; that would, probably, account for some of the similarities which were often to be found in buildings far apart; although with all the similarities found in buildings in different parts of Europe, they generally got a good deal of local colour, because necessarily a great deal of the work was done by local workmen, whose work naturally showed local peculiarities. Mr. White has alluded to foreign artists in England. Of course, it was well known that in many big houses that were erected the foreign artist and foreign workmen were employed. Mr. White had touched very properly upon the absurdity of putting towers into buildings where there was no necessity for towers or anything of the kind. He could not help thinking that in Mediæval times no such instance would have occurred, as he was credibly informed occurred in this great city, of a very elaborate *flèche* being erected by mistake on the wrong roof of a semi-public building, which had three roofs, before the mistake was discovered and the *flèche* transplanted to the roof for which it was intended. The constructional value of that *flèche* could not have been much. They should all endeavour to learn and practise the maxim that they should not use ornament for the sole sake of ornament,—that they should not build their ornament, but ornament their building. That was a lesson which all, whether old or young, ought to take to heart.

Mr. F. T. Baggallay seconded the vote of thanks, and said that Mr. White had been rather better than his word; for, although he had only promised to give them an account of the past and present aspects of his subject, he had taken a small excursion into the future. Mr. White's little epitome of the career of art in the past was as clear and striking, or, rather, clearer and more striking, than any such epitome that he (Mr. Baggallay) had come across, and his account of art in the present day was exceedingly amusing, to say nothing of its accuracy.

Mr. W. J. H. Leverton said it had been suggested that the Freemasons had a good deal to do with the spread of architectural skill in the olden times.

The Chairman said that Mr. White had told them how in the Middle Ages a band, or a school practically, of architects existed; and had mentioned Cluny. It would be interesting to have his ideas as to how the school of architects at Cluny was kept going. He (the speaker) supposed there was somebody at Cluny who taught those architects how to work—or did they merely examine? It was very true, as Mr. White had said, that in old buildings they found that the best painters and the best sculptors had been at work, and it was a great pity that this was not more often the case in modern times. But he thought things were improving, and there were some architects who now tried to get a good sculptor to do their sculpture and a good painter to do their decorative painting. He thought Mr. White had been a little severe on the modern sculptor, or "modeller," as he called him. He (the speaker) agreed that a great deal of modern sculpture was atrociously bad, but he thought that that very often arose from the fact that it was paid for so badly. If a man was paid only 10s. for carving a bust they could only get poor work. It was part of a system which certainly wanted mending. If they could get the public, and perhaps even themselves, to insist upon having nothing but good work in their buildings, they would get on rather better. Mr. White had spoken a little sarcastically about "art-architects." He (the speaker) did not know where Mr. White had got the term from. He knew that there was an idea abroad that some architects looked down upon all constructional matters, but he did not think that there was very much foundation for the idea. He had heard of an amusing combination by a gentleman who was a member of that Association, who called himself "architect and artist,"—words which were generally held to be synonymous, although evidently the gentleman in question did not seem to think so. He was sorry that Mr. White had tried to rob Wren of a good deal of the merit which was attributed to him. He had said that very probably Wren copied a good deal of his work from Venice. He (the speaker) hoped that was not so; at least, he would not say that, because he admired the work, whether it was copied or not; but he would like to think that it was not copied. He thoroughly agreed with Mr. White in what he had said about towers. It was most absurd that every building larger than a semi-detached villa must have a tower. Every town-hall must have its huge tower. He did not agree with that notion himself, and he was glad that Mr. White expressed himself so strongly on the subject. Mr. White had also talked about picturesque skylines! When he (the Chairman) heard a man talking about "a picturesque skyline," he generally put him down as an engineer, a "duffer," or an outsider. Mr. White had said he hoped that architectural education would continue to be directed in its proper course. On that point he (the Chairman) said he thought the members of the special committee on education deserved some little credit for having embodied in the curriculum which they had submitted to the Association, a course of lectures on painting and sculpture. That was a step in the right direction, he thought. At present architects were too prone to think that painting and sculpture were quite distinct professions from their own. He thought that if architectural education continued to be directed in its proper course, that they would see better results in the future. He also agreed very cordially with what Mr. White had said about the worship of the past. He (the Chairman) did not wish for one moment to run down the past or what the men of the past did, but he thought one copied too much what they had done. If we studied what they did and tried to get imbued with their ideas, and if we tried to execute our work in the spirit of the old men, without using the identical mouldings or details, he thought that we should obtain better results. He did not think young architects should confine themselves to the study of the work of the past; but that they should also study the best work of the present day. If we were to watch the progress we were making, and try to surpass it and improve upon it, he thought we might progress still more rapidly.

The vote of thanks was then put and carried unanimously.

Mr. W. H. White, in reply, said that Mr. Leverton had remarked that he (Mr. White) had made no allusion to the Freemasons with regard to the work of the Middle Ages. He would ask that gentleman to read Mr. Wyatt Papworth's paper on the Superintendence of Mediæval Buildings, which was in the "Transactions" of the Institute, and in which the writer referred to the Freemasons. If he might put it rather roughly he might say that the whole story of the Freemasons was exploded. As to the bands of travelling Freemasons, he did not think that anybody in our days had the slightest belief in that tradition. There was also another old idea about the existence of fraternities of bridge-builders. He believed that that idea was almost equally doubtful; but Mr. Papworth's paper was well worth the attention of every young man who cared to study it. Then with regard to Cluny. It was a story which had been told a great many times, and it had been best told by M. Viollet-le-Duc in his "Dictionnaire;" in fact most of those who had talked about the subject had got their ideas of it from Viollet-le-Duc. Cluny was destroyed at the great Revolution, and only a few remnants remain. Its great library was also destroyed at the end of the last century; but as far as education at Cluny was concerned, he believed that in all ranks of life men from all parts of Western Europe used to be sent there, very much as a Londoner was now sent to Oxford or Cambridge. As at Cluny, there was undoubtedly a great system of training for young men in the arts. There was no doubt also a body of seniors who looked very carefully into the doings of the juniors, and if they did not understand present methods of examination, they doubtless had something corresponding to it. With regard to what had been said about persons who called themselves "architects and artists," he could not help thinking of the immortal Pecksniff, who was described as "architect, artist, and man," and whenever he (the speaker) read about "art workmen" and "art architects" he always remembered that Pecksniff was "architect, artist, and man." The chairman had expressed regret that he (Mr. White) had hardly written of Wren with sufficient respect in stating that his draughtsmen had evidently been foreigners. The fact was well known, he believed, and it must be remembered that Wren had an enormous quantity of work all over the kingdom and all over London. Wren was also Surveyor to the Office of Works and Public Buildings. Wren was undoubtedly a man of great taste and scientific knowledge, but it was not to be supposed that he sat down with drawing-board and T-square to make drawings of the buildings the execution of which he superintended. The Chairman had also alluded to the subject of education, which was the leading topic of the day. He (the speaker) thought that the Chairman had almost hinted that painting and sculpture were hardly sufficiently appreciated; at least, that the teaching of painting and sculpture was hardly sufficiently cared for by the Architectural Association. All he could say was that architecture was such an enormous subject that, if the Association would teach architecture, everyone would be satisfied. The Association had enormous powers; but not sufficient to enable them to do all that they tried to do, and all that they wished to do. Too much was attempted, if he might be permitted to say so. As a very old member of the Association,—for he remembered the Association when its quarters were at Lyon's Inn Hall,—he remembered Professor Donaldson offering, in the name of the Institute, to take the whole of the Association in as students, to which he (Mr. White) and others objected. He also remembered Mr. Norman Shaw as the head of one of the A.A. classes. There was no person more desirous of seeing the Association prosper and become self-dependent than himself.

WORKMEN'S ACCIDENT INSURANCE IN SWEDEN.

The new law of State insurance for Swedish workmen against accidents and sickness covers all workmen engaged in the building and kindred trades, saw-mills, deal-yards, quarries, all industrial concerns, &c. A State insurance institute is to be established, the employers paying the premiums. Insurance with the State institute is not, however, compulsory, provided the employer has his hands similarly insured elsewhere; but, nevertheless, the State guarantees the compensation in all such cases. The amount of compensation is the same in all cases, viz., for total disablement for life, an annuity of 20*l.*; for disablement reducing working capacity for life an annuity of 17*l.*; for temporary disablement or sickness, 14d. a day. Hands under eighteen years of age receive only three-fourths of the above sums. In addition to the two former cases, where the assured has children he receives 24s. a year for each one under fifteen years of age, the total compensation, however, not to exceed 24*l.* 10s. In case of death through accident the payments are:—For funeral expenses, 1*l.* 13s.; annuity to widow, 6*l.* 13s. 6d.; annuity to every child under the age of fifteen, 3*l.* 7s., total, however, not to exceed 17*l.* a year. The employer has to report the accidents to the nearest police authorities, who, after investigating the case, report it to the institute. Anyone dissatisfied with the decisions of the latter may appeal before the Stockholm municipal court within one year. The payments for sickness are made weekly and others quarterly, the premiums of the employers being payable half-yearly, and in case of non-payment they may be enforced as Crown debts. When insured with the State the workman enjoys the great advantage of being insured from the moment he enters upon his work, whether notice thereof be given or not by the employer or himself. As to the rates of premium, the Minister of Public Works will divide them into classes, according to the risk of occupation, at first for three years, and afterwards every fifth year. Should experience prove any trade less risky it may be reduced in class. The State insurance also covers foremen and overseers of work. Should any person injured receive compensation from other persons according to general law the institute has the right of indemnification for any compensation. Moreover, employers as well as men may effect voluntary insurance with the State, but in no case must the sums assured be more than double those stated above. The State will establish and maintain the institute, the officials being one chief administrator, three directors, a secretary, a registrar, and a treasurer, and neither of the first four named must hold any other public office or position.

COMPETITIONS.

LICHFIELD UNION. — The Guardians of the Lichfield Union having decided to erect a new infirmary, it was resolved to invite several architects to meet a committee of the Guardians, who were to select one gentleman to be recommended to the meeting of the Board for the appointment. This was done, and Mr. W. H. Woodroffe, London, was unanimously appointed.

OSWESTRY NEW MUNICIPAL BUILDINGS.—At the monthly meeting of the Oswestry Town Council, held on the 1st inst., the Mayor (Mr. A. Wynne Corrie) presiding, it was agreed to submit the accepted plans of the new municipal buildings, designed by Mr. Cheers, of Twickenham, to the Library Committee, the Works Committee, the Standing County Joint Committee, and the county and borough magistrates, for suggestion. The estimated cost of the new buildings is 6,200*l.*

ARCHITECTURAL SOCIETIES.

LIVERPOOL ARCHITECTURAL SOCIETY.—On Monday, under the auspices of this society, at a numerously-attended meeting in the Royal Institution, Colquitt-street, Mr. T. H. Harrison, F.R.I.B.A., read an interesting paper on the subject of "House Drainage." One of the principal purposes of the paper was to instruct younger members of the society, who propose to enter the profession through the ordinary ordeal of the examination, as to the best means of carrying out house drainage efficiently and under the best known sanitary conditions. By means of a flask and syphon tubes Mr. Harrison demonstrated the unreliability of some traps used as a protection against sewer-gas. He produced specimens of tree roots which had grown into and filled up drains, thereby showing the necessity for cement joints as against clay joints. He also described the best known system of providing efficient drainage for country houses where no sewers exist, as well as for others.

MANCHESTER ARCHITECTURAL ASSOCIATION.—The third ordinary meeting of this Association for the present session was held on Tuesday, at the Diocesan Buildings, Mr. T. Chadwick, A.R.I.B.A., President, in the chair. Mr. G. H. Willoughby read a paper on "The Advantages of Terra-Cotta relative to our Town and City Buildings," which he classified under five heads:—Its durability as compared with stone; its comparative cost; its variety and permanency of colour; its advantages for internal decoration in the form of "faïence"; and, lastly, a few general remarks. Each heading was exhaustively dealt with, and many buildings mentioned as illustrating its use. Much injury has been done to the progress and adoption of terra-cotta by the use of inferior material on account of cheapness. Manchester is far behind London in its adoption of terra-cotta, and to Mr. Waterhouse, who may be regarded as its most enthusiastic advocate, are the London people greatly indebted for the increased cheerfulness and sightliness his buildings have given to their streets and suburbs. The application of "Faïence," or glazed terra-cotta, for internal decoration in some of our Manchester buildings recently erected was a recognition of its value as a permanent decorative material.* Before concluding, Mr. Willoughby suggested several remedies to the objection of the use of this material. A vote of thanks, proposed by Mr. Davis Colley, seconded by Mr. Mee, and supported by the chairman and Messrs. J. S. Hodgson and Stelfox, concluded the meeting.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The opening meeting of the thirty-third session of the Edinburgh Architectural Association took place on the 27th ult., in the Architectural Hall, George-street, Edinburgh. Mr. John Kinross, President of the Association, occupied the chair, and delivered an opening address. He touched briefly on the need of University teaching of architecture, and for that purpose the need of endowed chairs. He advocated the establishment of a Scottish institute of architects, and discussed the question of open or limited competitions. He thought, in regard to the latter point, that the remedy was in the hands of architects themselves, who ought to discourage competitions for buildings of little importance or moderate cost by refusing to enter them. Turning to subjects of more general interest, Mr. Kinross had some remarks to offer regarding the character of our buildings, particularly in the suburbs. He thought the overcrowding and high buildings in some parts of the suburbs ought to receive attention. No building seemed high enough. Another subject to which he drew attention was the antiquated methods of our buildings. We were still deplorably behind the age in some respects. The floors were a harbour of vermin. The roofs were far from being as advanced as they should be. It was high time a move was made towards improvements in those directions. Mr. Kinross went on to speak of matters which concerned the younger members of the profession. He passed some criticism upon the excessive refinement of some of the draughtsmanship of the present day, he emphasised the value of the systematic study of old buildings, and closed with some practical advice as to methods in designing. At the close there was some discussion on the points raised in the address, in which general concurrence was expressed with Mr. Kinross's views. Mr. Kinross was cordially thanked for his address.

* No doubt, but care should be taken to give to the tiles an adequate means of keying with the plaster. For want of this precaution much inconvenience, and even danger, has been experienced, we hear, with regard to the internal decorations of the National Liberal Club. —ED.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday afternoon, Sir John Lubbock in the chair.

Appointment of Measuring Surveyors and Measuring Clerk.—The General Purposes Committee's report contained the following paragraph and recommendations:—

"The Council on October 14 authorised the following appointments, viz. (1), a Measuring Surveyor in the Chief Engineer's Department; (2) a Measuring Surveyor in the Architect's Department; and (3) a Measuring Clerk in the Architect's Department. We have now to report that, having advertised for candidates, we received 19 applications for the appointment of Engineer's Measuring Surveyor, 36 for that of the Architect's Measuring Surveyor, and 37 for the Measuring Clerkship. The qualifications of the applicants having been carefully examined, we recommend:—

'(*a*) That Mr. J. Gray be appointed Measuring Surveyor in the Engineer's department, in the first class, at the commencing salary of 200*l.* a year; that his appointment be held during the pleasure of the Council, and be subject to the conditions that he be required to give his whole time to the duties of his office, and be not allowed to take any private business; that he shall not on retirement claim or be entitled to any superannuation or pension, and that he shall submit to any general scheme which the Council may adopt with respect to insurance for pensions or superannuation.'

'(*b*) That Mr. F. Brown be appointed Measuring Surveyor in the Architect's department, in the first class, at the commencing salary of 200*l.* a year; that his appointment be held during the pleasure of the Council, and be subject to the conditions that he be required to give his whole time to the duties of his office, and be not allowed to take any private business; that he shall not on retirement claim or be entitled to any superannuation or pension, and that he shall submit to any general scheme which the Council may adopt with respect to insurance for pensions or superannuation.'

'(*c*) That Mr. C. J. Ashton be appointed Measuring Clerk in the Architect's department, in the third class, at the commencing salary of 100*l.* a year; that his appointment be held during the pleasure of the Council, and be subject to the conditions that he be required to give his whole time to the duties of his office, and be not allowed to take any private business; that he shall not on retirement claim or be entitled to any superannuation or pension, and that he shall submit to any general scheme which the Council may adopt with respect to insurance for pensions or superannuation.'"

These recommendations were all agreed to.

The Bethnal Green Slum-clearance Scheme.—The Report of the Housing of the Working Classes Committee contained the following paragraphs and recommendation as to the Bethnal Green Slum-clearance Scheme, of which we have already published the details at some length (see *Builder* for Nov. 1, p. 347):—

"Your Committee are carefully considering the question of rehousing the persons who will ultimately be displaced by the proposed clearance in Bethnal-green, and their wish is to effect the clearance with as little inconvenience as possible to those who will have to be removed. Directly the area is acquired by the Council, the first step will be to close the most insanitary dwellings, and therefore it is necessary to make provision beforehand in the vicinity of the area for the accommodation of those who are first displaced. Your Committee were unable to take any actual step in the direction of recommending to the Council the hiring or buying of any vacant land for the above purpose until the Council had passed a resolution in favour of the scheme. The Committee, however, were aware that there are two vacant sites which are convenient for the purpose, and after the adoption of the scheme by the Council they at once entered into preliminary negotiations with the owners of those sites. They have now ascertained that with regard to one of these the matter is extremely urgent, as the owners have received an offer to acquire the site for commercial purposes, and intend to accept this unless they receive an offer from the Council without delay. As a matter of urgency, therefore, your Committee bring this question before the Council.

The site is situate between Gossett-street and Duke-street, and is only about 150 yards from the insanitary area. The ground is vacant, and building might commence immediately. The accommodation would be for about 250 persons in buildings of four floors. Your Committee are of opinion that a fair price for this site, if acquired by purchase, would be 4,800*l.*, or, if by way of lease, a rent not exceeding 240*l.* per annum. Buildings erected on the site would be ready for occupation within twelve months from the date of acquisition. Your Committee are aware that there is difficulty in great clearance schemes to find accommodation for those who are first displaced, and they feel bound to lose no opportunity of making some provision, so as to have suitable accommodation ready at hand. Your Committee therefore recommend the Council to pass the following resolution—

'That, in order to provide part of the accommodation which will be required in connexion with the Boundary-street scheme, it is desirable that the piece of land in Gossett-street, now vacant and comprising about half-an-acre, should be acquired under Part 3 of the Housing Act, 1890, and that the Housing of the Working Classes Committee be authorised, subject to the necessary estimate being submitted to the Council by the Finance Committee, as required by the statute, to make arrangements for acquiring the same with the consent of the Local Government Board, by purchase or lease; if by purchase, at a price not exceeding 4,800*l.*, or if by way of lease, at a rent not exceeding 240*l.*'"

Mr. Rhodes moved, and Mr. Hutton seconded, an amendment referring the report back to the Committee, with instructions to state what measures were to be taken for utilising the land proposed to be acquired.

After considerable discussion the debate was adjourned till next week.

Rosebery-avenue.—The Improvements Committee, in their report, said:—

"We have had under consideration the plan for the northern portion of this improvement (lying between Farringdon-road and St. John-street-road), and we find that it is necessary to obtain the formal sanction of the Council to the construction of the subway, the same not having been specifically mentioned in the Act authorising the improvement. The Council is aware that a subway has already been provided in the completed portion, and it is intended to extend it the whole length of Rosebery-avenue. The section now reported on would be about 2,000 ft. in length, 12 ft. in width, and 7 ft. 6 in. in height, and is estimated to cost about 12,000*l.* We recommend:—

'(*a*) That, subject to an estimate being submitted to the Council by the Finance Committee, as required by the statute, a subway be constructed along Rosebery-avenue, between Farringdon-road and St. John-street-road.'

We are also of opinion that persons who use the subway for laying their pipes and wires should pay for the privilege, and therefore we recommend—

'(*b*) That it be referred to the Parliamentary Committee to consider and report on the advisability of applying to Parliament for powers to compel gas, water, and other companies to place their pipes, wires, &c., in the subway, and to enable the Council to charge a rent for such user.'

In connexion with this subject, we have had under consideration the question of altering the position of a 48-in. water main belonging to the New River Company. This main runs from the New River Head to St. John-street-road, and for a distance of about 400 ft. will be disturbed by the formation of Rosebery-avenue. By the terms of the Act the main must be laid between the months of November and April, and we are anxious to arrange for the work to be commenced almost immediately, for it is obvious that unless it be completed by April there will be a delay of nearly a year. The question now arises whether this main, for the short length which it will traverse Rosebery-avenue, shall be inside or outside the subway. If it be placed inside, a considerable difficulty presents itself, because the sewer will be laid under the subway, and we are advised that it would be utterly impossible to clear the ground and construct the sewer with the subway above it, in sufficient time to enable this large main to be laid down within the time specified. We are informed by the Engineer that if this main were to be laid outside the subway the very serious delay indicated would be avoided, and that as it serves as a conduit for feeding the supply pipes it is not subject to a high pressure, and consequently not liable to be disturbed like an ordinary service main. The service main for the supply of the locality would be laid inside the subway. The matter being one of some importance, we have felt it our duty to report to and seek the

instructions of the Council thereon. The completion of this important improvement is so urgently desired by the Council and the public, that we believe that any avoidable delay would not be sanctioned by the Council. We therefore recommend,—

'(c) That the 48-inch water-main belonging to the New River Company be laid outside, and the service main inside the subway of Rosbery-avenue.'"

These recommendations were agreed to, and after the transaction of other business the Council adjourned.

BUILDERS' BENEVOLENT INSTITUTION.

ELECTION OF A PENSIONER.

An election of one pensioner on the funds of this Institution was held at the Offices, 4, Vernon-place, Bloomsbury-square, on Thursday, the 27th ult., Mr. W. Shepherd (President) in the chair. There were five candidates for the one vacancy, viz., one man and four women.

Shortly after the close of the poll, the scrutineers (Messrs. T. Stirling and T. F. Rider) announced the result of the poll to be as follows, viz.:—Charles Sabey, 97, St. Peter's-street, Islington, aged 71, builder (third application), 1,636 votes; Margaret Alice Richardson, 5, Preston, North Shields, aged 66, widow of T. B. Richardson, builder (fourth application), 1,297 votes; Mary Ann Shapland, 122, Stamford-street, Lambeth, aged 71, widow of William Shapland, builder (third application), 1,241 votes; Elizabeth Darby, 2, Sangora-road, Clapham Junction, aged 81, widow of Edward Darby, builder (first application), 3,227 votes; Bessy Webb, 314, Old-street, E.C., aged 60, widow of Robert Webb, builder (second application), 1,585 votes. The successful candidate was therefore declared to be Elizabeth Darby, whose late husband subscribed to the Institution from the time of its foundation.

The Chairman regretted that the Committee had the painful duty of sending away four deserving candidates through want of funds. The building and allied trades numbered 5,000 firms within the Metropolitan area, yet only one-tenth of that number supported the Institution. He therefore appealed to non-subscribers for assistance.

Among the friends of the Institution (other than those already named) who took part in the proceedings were Messrs. C. Bussell, J. T. Bolding, W. Scrivener, R. Perkins, and G. M. Watts.

Votes of thanks to the chairman and scrutineers closed the proceedings.

ROBERT BOYLE & SON, LIMITED.

The fifth annual meeting of this Company was held at the City Terminus Hotel on the 26th ult., when a dividend of 12½ per cent. was declared on the ordinary and deferred shares, one sixth of the profits earned being placed to the reserve fund, and a balance of 1,299*l.* carried forward to next year.

The Chairman (Mr. Gilbert Wood) in moving the adoption of the report and accounts, which were unanimously carried, called attention to the continued satisfactory position of the Company, which still maintained the high position that had been won for it under the experienced management of Mr. Boyle. The business of the Company showed a steady increase from year to year, and he thought the shareholders were to be congratulated on the results achieved.

In moving the re-election of Mr. Robert Boyle as a Director, the Chairman said that the shareholders present would feel, with himself, that this was a more or less formal resolution, Mr. Boyle being practically the Company itself.

Mr. Robert Hobart (a Director), in seconding the resolution, which was carried unanimously, said he thought the shareholders owed a deep debt of gratitude to Mr. Boyle for his energy and self-sacrifice in the interests of the Company. He devoted his whole time to its affairs, and the best proof of his labours on behalf of the Company was the fact that, in the face of the keenest opposition, and the numerous attempts that were being made on all sides to successfully compete with the Company, the dividends had been maintained at so satisfactory a figure.

The other Directors for the year and the Auditors having been unanimously elected,

Mr. Robert Boyle, in acknowledging the unanimous vote of thanks accorded to the Board and to himself as Managing Director, said: I beg to thank you on behalf of my co-Directors and myself for the very cordial manner in which you have recorded your approval of the report which has been submitted to you. When the prospectus of this Company was issued five years ago, I showed the confidence I had in the business by taking practically the whole of the purchase-money in shares in the Company, I holding fully three-fourths of the shares issued, to which I have added as opportunity offered. I also personally guaranteed a minimum dividend of 10 per cent. each year for the first five years, which period having now elapsed, you are in a position to judge as to how I have fulfilled my undertaking. I trust, as I also believe, that the next five years will be equally as successful, the demand for the ventilating and sanitary appliances of the Company increasing every year, both at home and abroad. The latest improved form of the self-acting air-pump ventilator is giving great satisfaction wherever used, and though of superior power and make, being constructed of the best rolled steel plates, galvanised, and the workmanship of the highest class, is sold at about 50 per cent. less in price than the inferior forms previously manufactured. The foreign agencies are progressing satisfactorily, the air-pump ventilator and other appliances being applied with continued success to an ever-increasing number of important public buildings in Germany, France, Russia, Belgium, Italy, Spain, Holland, Denmark, and Norway and Sweden, also America and Australia. You will doubtless have seen from the published accounts that I have during the past year visited Egypt, India, China, and Japan, and I believe a good foundation has been laid for an important extension of the Company's business in those countries, where we have already ventilated a large number of Government and other public buildings. It is my intention to proceed early next year to South Africa, where we have always done a large business, but which I believe to be capable of considerable development if systematically worked up, and I trust at our next annual meeting to be able to submit to you, as the outcome of my endeavours, results which may be considered satisfactory.

The proceedings then terminated.

Books.

Estimating: A Method of Pricing Builders' Quantities for Competitive Work. By George Stephenson. Second Edition, carefully revised. London: B. T. Batsford. 1890.

Repairs: How to Measure and Value them. A Handbook for the Use of Builders, Decorators, &c. By George Stephenson. London: B. T. Batsford. 1890.

It is strange that amongst the immense number of books which have been produced on various matters connected with building so few have dealt in a thorough manner with the subject of estimating. Yet its importance can hardly be overrated. A builder builds in order that he may gain a livelihood and, therefore, a profit, and,—unlike almost every other tradesman,—he undertakes in advance to produce for a certain price something differing in many respects from anything that has ever been produced before. One would expect, therefore, that estimating would be universally based on scientific principles. This, however, is far from being the case. Indeed, we fear that more than half the estimates made are based on prices partly traditional and partly got by rule of thumb. It has been our lot on several occasions to examine the same bills of quantities as priced by two or three competing firms, and we have always been struck by the marvellous diversity in the prices set down for the same thing,—a diversity to all appearance wholly unwarranted. And to make the matter worse, these diversities are most marked in the items of labour only, where surely we might almost expect identity. A London builder, carrying on a large business, upon whom these considerations were once pressed, replied that if some of his prices were too low, others were too high, so that the result was the same! This happy-go-lucky fashion of pricing a bill of quantities, at all times dangerous, is rendered still more so by the condition now usual in building contracts, under which the priced bills of quantities become a schedule for the valuation of extra works. Thus a builder often finds himself called upon to do a considerable amount of work of a kind he has under-priced, and a contract that would have shown a profit leaves him with an absolute loss; a result due to want of reasonable care in preparing his original estimate and to nothing else. As all builders know, price-books are of little or no use in pricing a competitive estimate, and each competitor must construct his prices for himself. By few is the importance realised of doing this in a scientific manner. Of what elements does a price consist? Clearly of the following:—1. Material; 2. Waste; 3. Labour; 4. Carriage; 5. Profit, including risk.

1. The price of materials constantly varies with the market, and must be calculated and re-calculated as occasion may require.

2. Waste can be ascertained by observation, classification, and analysis, and may be expressed by a percentage.

3. The quantity of labour can be similarly arrived at, and can be expressed by a constant, which, being applied to the current rate of wages, will give this element of the price. For example, assuming that the constant for a 2-in. four-panel square-framed deal door is ·68 per foot per hour, and the rate of wages 9d., the labour would be 6·12d. (or about 6½d.) per foot superficial.

4. The cost of carriage may vary with every contract, but can usually be ascertained by inquiry, and expressed by a percentage on all items, excepting labour at the workshops.

5. Profit and risk.—In our opinion the proper mode of dealing with these elements is to price every item in the first instance at prime cost, and at the end of each bill to add for carriage, next a percentage for risk, and lastly a percentage for profit. The percentage for risk will obviously vary with the different trades, and in a less degree that for profit also, being in the latter case greatest when the proportion of labour to material is highest.

We can see no reason why, in every builder's office, there should not be compiled from foremen's reports a series of tables showing the constants of labour and waste, which would render the calculation of prices an easy task.

The two books before us on "Estimating" and on "Repairs" deserve commendation, inasmuch as they are based on a theory of the calculation of prices which is in the main correct. They also contain many valuable hints and maxims of a general character, but their chief merit lies in the fact that they attack the "jumping" method of estimating with its results at once ridiculous and disastrous, and that they do this in the most effective manner, viz., by showing a better way. False ideas may be confuted by argument, but only by true ideas can they be expelled.

At the same time we must point out that the books contain many faults. The first and chief of these is that the prices are too low. Good work cannot be done at these rates. The author seems to assume that every workman will always be working at his maximum of efficiency. There is also too little allowance for risk. 1s. 2d. is hardly enough for labour of mixing, throwing in, and levelling a cubic yard of concrete; nor 1s. 11d. for a superficial yard of Portland cement paving, ¾ in. thick, laid in the best manner.

A further illustration of the same error is to be found in the price of 4d. each for fair ends to a 11 in. × 3 in. York throated window sill, which is based on the sanguine assumption that a mason would do four of them in an hour! (p. 33). On the item, "extra only on common brickwork, for rubbed and gauged arches in best red bricks and pointing," the author remarks, "I should say these were not deducted from the red facings." This is to misunderstand the plain meaning of the item. Erroneous also are the statements that in pricing "oversail one course of facing, there is the material in the projection to provide for" (p. 26), and that it is not usual to price rough relieving and segmental arches.

In conclusion, we must add a word of criticism on the following passage on money provisions (p. 6):—"It is a custom with many architects to say of provisions: 'These prices are P.C., and the contractor must add his profit, &c.' If the work is *wanted* by the contractor, he seldom adds anything to the so-called P.C. prices, but relies on the trade discount for profit. Where the discount is allowed, this often leads to a dispute between architect and builder as to whether P.C. means list prices or net after deducting the trade discount."

In the interests of honesty of estimating, we must protest against the practice of pretending to misunderstand the meaning of the term P.C. As every one knows, it means the price after deducting the trade discount, which varies from 5 to 40 per cent. There is no surer way of breeding disputes and irritation than for the builder in these cases to "rely on the trade discount for a profit." He can only succeed by outwitting the architect in collusion with the special tradesmen. He is almost certain to be found out, and all confidence in him is henceforth at an end.

Asbestos: Its Properties, Occurrence, and Uses. By Robert H. Jones. Crosby Lockwood & Son.

The author of this admirable treatise on a subject of rapidly growing importance may be congratulated on having written a book that was really needed. Asbestos has hitherto, so far as we know, only been dealt with sectionally and in scattered communications buried

in encyclopædias, scientific journals, and blue books.

The work is, of course, largely and necessarily a compilation, but the compilation is very well done, and is interspersed with much useful original matter. The value of the book is greatly increased by the numerous and excellent illustrations with which it is embellished. The beautiful collotype plates merit special recognition, reproducing, as they do, with photographic fidelity, the curious fibrous structure of various specimens of the mineral.

Although asbestos is a widely-used word, and the general physical characters of the mineral pretty well known, it does not seem to be so well understood that the term is not a specific one, but is applied to a number of minerals differing considerably in chemical and other characters, but resembling each other in having some degree of fibrous structure. Asbestos is usually regarded as a variety of hornblende, which, by Dana, is classed as a sub-division of *Amphibole* and includes the following varieties:—

Amianthus which is characterised by the length of its flexible and elastic fibres. Common asbestos which is unctuous to the touch, often of a pearly lustre, and is heavier and less flexible than amianthus.

Mountain Cork, so called from its general appearance and power of floating on water, due to the multitude of air spaces it encloses. *Mountain leather, Mountain paper, and Mountain wood* are, as their names indicate, fibrous minerals of peculiar appearance. In addition there are included under the term asbestos fibrous varieties of *Pyroxene* and *Crocidolide*.

As regards chemical composition, the different forms of asbestos may be regarded as silicates of lime and magnesia, or alumina with varying amounts of water.

At the present time Canadian and Italian asbestos hold the market, and although other deposits has been met with that promise well, no serious competitor to the products of these two countries has yet come to the front. The principal mines are nearly all in the hands of a few large manufacturers, who require all they can get for their own purposes; hence the market price of the mineral tends to rise to a point that greatly restricts its general availability, especially as new applications for it are being constantly discovered. It is to be hoped that large and easily-worked deposits of suitable mineral will before long be discovered and worked, otherwise it may rise in value, as platinum has, to an almost prohibitive figure. Platinum, it may be remembered, was a few years ago purchaseable at about 40s. per oz.; recently through the numerous fresh and extended applications of the metal, which have created a demand for it greatly exceeding the limited supply, the price has risen to 84s. per oz., a price that simply prevents its profitable utilisation in certain directions; and so it seems likely, in less degree, to be the case with asbestos, of which, however, there is plenty of a certain kind, but only a limited amount of the most useful quality.

To our readers the chapters dealing with the technical applications of asbestos will have special interest.

The employments of the woven and felted mineral in boiler-coverings, packings, and firefelts, the millboard used for steam-joints, lining walls and safes, and even in the construction of library shelves, are all well known.

The value of asbestos curtains in theatres and similar places of amusement, for the purpose of confining the flames and smoke in the event of an outbreak of fire to the stage, is pretty fully recognised. Such curtains have obvious advantages as regards lightness, noiselessness, and infusibility, over those of iron or steel, which are apt to be cumbrous, clumsy, and noisy, in addition to their liability to rust when not in use, and to bulge and fuse when their services are most required.

Asbestos paint has proved itself an efficacious localiser of fire, when applied to woodwork and other inflammable materials. For packing and lining the walls of cold storage buildings and refrigerating chambers, its low conductivity for heat makes it very serviceable. As a roofing material it is also efficient in certain situations, and can be utilised in one or other of its manufactured forms.

We counsel our readers to get this exceedingly interesting little work for themselves; they will find in it much that is suggestive, and a great deal that is of immediate and practical usefulness.

The Architects' Valuator and Directory of Architects belonging to Institutes and Associations in the United Kingdom. Manchester: William Osborn. 1890.

WE are at a loss to conceive whence the "Architects' Valuator" gets its name. It is simply a collection of trade prospectuses, and its value consists of being a convenient compendium of what a large number of manufacturers have to say in recommendation of their own goods. The appendix, giving a list of architects belonging to the recognised Institutes and Associations of the United Kingdom, is useful.

Correspondence.

To the Editor of THE BUILDER.

BRICK-BURNING.

SIR,—Mr. Jopling's letter in your issue of Nov. 22 calls, I think, for a reply from some one acquainted with the brickmaking process, and with your permission I will briefly give expression to my opinions from a brickmaker's point of view, as I am quite sure you will readily admit there are two sides even to this question.

From Mr. Jopling's letter it would appear that clamp bricks are burned with "animal and vegetable refuse, in all stages of putridity, and all kinds of indescribable filth;" permit me to say that clamp bricks are burned with breeze and ashes, these being the technical names applied to the coarser and finer residue of cinders extracted from rough dust, after the animal, vegetable, mineral, and other refuse has been most carefully sorted out.

In regard to the opinion expressed that the clamp brick is doomed, and that kiln bricks of a better quality can be produced at as low or lower cost, I would say that in the opinion of men well qualified to judge there is no brick which will stand the atmospheric influences of London so well as the clamp-burnt stock, which resists fire, frost, and the effect of smoke, &c. Many buildings have been erected in London within the last few years, and faced with these cheap kiln bricks, and I have watched with interest in several cases the disfigurement of many of these buildings through the decay of these same bricks, which may be seen in a state of disintegration. I think, however, I may safely say that no one can point to a properly burnt London stock brick deteriorating under similar conditions.

The great point of difference between a clamp-burnt and a kiln brick is that the former is actually burnt, the clay and admixture of ashes forming a fuel, whilst the latter is only baked, although, possibly, at a great heat. Nature, ever beneficent, appears to have provided a clay in the proximity of London exactly suited to the requirements of the neighbourhood, and, although, I readily admit some kiln-burnt bricks of an expensive character may stand the influences of weather fairly well, I feel quite sure that the common class of wire-cut brick, which has recently been brought into the London market, will not stand like a clamp-burnt stock, which does not fly under the influence of fire, is unaffected by frost, and resists the insidious attacks of acids in sewage and smoke. The clamp brick is light in weight, though sound, and the granular skin gives the best possible surface for the adhesion of mortar or cement.

The proposed by-law of the London County Council is undoubtedly of the gravest importance to brickmakers in the London district, as I fail to see how it is possible to burn either clamp or kiln bricks without emitting smoke. The kiln really emits a denser volume of smoke than the clamp, as it is fired entirely with coal, whereas the clamp burns bodily every brick-forming fuel, layers of breeze, which is practically smokeless, being used to "fire" the clamp. The clamp brickmaking interest supplying the London market would represent an out-put of some six or seven hundred millions of bricks per annum; the capital invested is very large, and the men employed many thousands. Some districts are almost entirely populated with families interested in this class of brickmaking, and the announcement of your correspondent that the trade is doomed is a big order. All brickmakers (with very few exceptions who are freeholders) hold their leases under a covenant to make a minimum number of some millions of bricks per annum upon which a royalty has to be paid, and if there is a possibility of closing brickworks, many of which have been in operation for very many years, and have been the means of employment to families for generations, I think the question of compensation may very properly be raised.

There is no doubt that the present agitation is caused through some West-end Vestries depositing the refuse of the parishes in two or three brickfields near populous neighbourhoods, and in which no facilities were at hand for the destruction of the animal and vegetable matter, which was therefore openly burnt, and the smell arising from this has perhaps somewhat naturally, although erroneously, been attributed to the burning of bricks, and has unquestionably been a cause of offence. I take it, however, that a large industry such as this should not be condemned through the indiscretion of two or three individuals. A BRICKMAKER.

MESSRS. FLOCKTON & GIBBS'S PATENT.

SIR,—In our letter to you of October 31 we stated "The date of advertisement of this patent is, we believe, October 29, 1890."

Our attention has recently been drawn to an advertisement in the *Patent Journal* of October 8 of "Patent No. 19,624, Hockton & Gibbs." This printer's error led to our patent agent not noticing the advertisement.

He has applied to the Patent Office for a correction, and, at our request, for an extension of the time within which notice of opposition must be given. The Patent Office will correct the printer's error, but refuse to extend the time for notice of opposition beyond the 8th inst. We hasten to inform you of this. FLOCKTON & GIBBS.

Sheffield, December 3.

BRIDGE CHAPELS.

SIR,—Your correspondent, "W. E. D.-M." might have added to his list the Chapel of St. Edmund and St. Edward the Confessor, formerly on the bridge over the Dart, at Totnes, Devon.

C. R. B. K.

The Student's Column.

HOT-WATER SUPPLY FOR BATHS, LAVATORIES, &c.—XXIII.

FAULTS AND SOURCES OF DANGER (*continued*).

IT is possible for great trouble and annoyance to arise from a very trifling cause. As an instance, we may mention a piece of loose material in the pipes. This may arise from the workman omitting to look through his pipes the last thing before using them, or it is usual for workmen, when leaving an unfinished job at night, to stop up the open ends of their pipes with a plug of hemp or other such material, which, if not carefully removed, may leave sufficient in the pipe to give the greatest trouble imaginable.

There is no fault so difficult to locate and remedy as that of what we may call a "floating obstacle," and it is a fault that may not show itself except at irregular intervals.

Sometimes a stoppage will occur by a fall of "fur," which will collect at one of the angles; this rarely occurs if the pipes are not interfered with, but if old pipes are being altered or worked upon in any way, it is one of the most common results to expect, as the jar of the tools and the hammering so often necessary in loosening old sockets, also loosens the incrusted deposit as a matter of course. The most common place for the loosened matter to collect is just by the taps, as the rapid passage of the water carries it to this point, and after working on old pipes in a hard-water district one or more of the old taps have to be removed to clear the pipe nearly always.

When noises are heard in the pipes of a hot-water supply apparatus they may arise from various causes, many of which are peculiar to new work and of which we have already spoken. In old work they are nearly always attributable to furred pipes, which, when sufficiently obstructed, prevent a free escape of steam, which, consequently, has to attain sufficient strength to force its way out with more or less violence according to the resistance it experiences.

When the pipes are clear the rapid circulation of the water carries the steam with it to the point where it can escape easily, *i.e.*, to the expansion-pipe, but when the pipes are closed the circulation is retarded, and the steam requires to make its exit faster than the water can convey it.

This trouble is always conspicuous by its gradual growth, but when professional assistance is called in, it is, of course, usually, at its height, as the occupiers of the building nearly always allow it to go on until the noises are positively alarming, when it is necessary to take down the furred portion of the pipes and replace them with new. In almost every instance the pipes nearest the boiler will be found in the worst condition.

ACCIDENTS AND SOURCES OF DANGER.

An apparatus of the kind under discussion may be said to be perfectly safe in a general way, but, like everything else, it is subject to accidental circumstances, which in this instance are often sources of real danger. The element

of danger is steam, but this is quite harmless if it is not confined, and has free exit and escape.

The expansion-pipe is provided expressly to ensure safety, but if it becomes stopped by any means its safety is instantly disposed of; but the stoppage of the expansion-pipe only will not usually bring about an explosion, as before this can occur the pressure exerted will relieve itself by way of the cold supply service, supposing this pipe to be clear, and, in fact, if there is any possible way for the steam to escape by the exertion of pressure, it will go this way before there is any likelihood of the boiler bursting, as we must remember that the boiler and pipes, &c., are of a strength that requires a very great power to bring about their rupture, and it is on this account that such accidents are so usually fatal to life, as when an explosion does occur the force, which is of a rending nature, is most destructive.

We may sum up the causes of accidents, by explosion at the boiler, as follows:—

1. Frost.—This is the general cause of such accidents, and it is really wonderful that the number is so very small from this cause. In the first place, some portion of the cold supply service to the cylinder is generally in the coldest place imaginable, such as the roof or a room just under the roof, and it follows, as a matter of course, that the expansion pipe is terminated in a similar position. Now, here we have the only two open pipes of the apparatus, with their extremities in a position most favourable for their being stopped by frost; we may take it ror granted that in a simple form of apparatus, the contents of the reservoir will be brought down to a low temperature in four or five hours after the fire is extinguished at night, particularly in severe weather, and this leaves two or three hours (the coldest of the twenty-four) for the pipes to become frozen if it is possible for them to become so, and it must be remarked again that accidents of greater frequency from this cause ought almost to be expected.

There is not the least doubt that many and many a kitchen fire has been lighted in happy ignorance when it has been almost suicidal to do so; but there are, fortunately, many small things unknowingly done by servants and others that tend to obviate danger. For instance, there is no danger until steam is formed, and under a very high pressure; this can only happen if the boiler is a rapid heating one, *and no water is drawn off*. If we draw water we relieve the pressure, and, what is more, reduce the temperature probably, and the opening of the tap will most likely give indication that something is wrong. Then another source of safety is present in the fact that there is every possibility of the ice in the expansion-pipe melting (by the warmed water in the apparatus) before any steam is generated.

The conclusion we must arrive at in this matter is that all pipes in connexion with a hot-water supply apparatus that are situated in cold positions, particularly in roofs, should be well covered with some poor conductor of heat, such as hair felt or any woollen material or other substance that will prevent loss of heat by radiation.

Next in priority to frost as a source of danger is the practice of putting stop-cocks in the main (primary) flow and return pipes; this practice has already been referred to fully, and needs no further notice here, except to say that it should be condemned to the utmost of everyone's power.

Another possible cause of explosion is a shortness of, or exhausting, the water supply unknowingly; we say unknowingly, as should the failure in supply be noticed every one has sufficient sense to take some steps to avoid possible accidents. This cannot very well happen with the cylinder system of apparatus, and it cannot very well occur anyhow without the shortness of water becoming quickly apparent at the taps, but it was only quite recently that a serious accident from this cause was only escaped by the fortunate existence of a safety valve, as it appears the water had been drawn nearly all away overnight, and the fire had been lighted for some hours in the morning without anyone noticing the want of water, so that what little remained had been evaporated, and when the daily supply of water came in, some portion of it did its best to flow into the red-hot boiler, with results that need no describing. The force exerted in this instance was so great that the safety valve did not merely open but had the upper portion twisted up like a piece of crumpled paper.

The last source of danger there is to explain is "furred" pipes. This question has been practically exhausted in the previous papers, but it might be repeated that an accident from this cause, though possible, is highly improbable, as before any real danger need be feared the noises and violent shakings and vibrations must warn everyone to give the matter attention promptly.

OBITUARY.

Mr. Joseph, F.S.A.—The death has just occurred of Mr. Joseph, of Brecon, in his sixty-fifth year. The deceased gentleman, who was formerly a banker at Brecon, was a Fellow of the Society of Antiquaries, and an old member of the Cambrian Archæological Society.

Mr. Robert Slater.—The death is announced, at the age of 49, of Mr. Robert Slater, which took place on Monday night, at his residence, Holly Bush, Broomfield-crescent, Headingley, Leeds. According to the *Leeds Mercury*, Mr. Slater had achieved an enviable reputation as a sanitary engineer. He was called in to overhaul the drainage of Hawarden Castle, Clifton Castle, the Reform Club, Cookridge Hospital, and many other mansions and institutions in various parts of the country. Mr. Slater was a guardian of the poor, and also a member of the Corporation. He entered the Leeds County Council in January, 1886.

GENERAL BUILDING NEWS.

New Police Buildings at Bromsgrove.—On the 25th ult. Mr. G. W. Hastings, M.P., Chairman of the Worcester County Council, opened the new police buildings, which have been erected by the County Council in the Crescent New-road, Bromsgrove. The total cost has been between 4,500*l.* and 5,000*l.* The new police-station comprises residences for the superintendent, sergeant, and a married constable, with a mess-room and dormitory accommodation for six single constables. A charge-room, six cells (with a corridor approaching), and a drying chamber are also provided and heated with hot-water apparatus. The Magistrates' Court is 50 ft. by 30 ft., by 22 ft. in height. The buildings were designed by Mr. Henry Rowe, County Surveyor, Mr. Turberville being clerk of the works, Messrs. Tilt & Weaver, of Bromsgrove, the contractors, and Messrs. Ward & Son, of Worcester, the hot-water engineers.

New Hall, Kidderminster.—A new building has just been erected in Lorne-street, Kidderminster which has been presented to the Baptists of the town. The building, which has been named Milton Hall, was built by Messrs. Binnian, of Kidderminster, from the plans of Messrs. Ingall and Sons, of Birmingham, and will seat 350 people. Its erection and furnishing cost about 2,000*l.*

New Y.M.C.A. Institute, Birkenhead.—On the 26th ult. a new Institute for the Young Men's Christian Association was opened at Birkenhead. The new building is constructed of red bricks and terra cotta. It is situated in Grange-road, and has a frontage of 60 ft. The entrance in Grange-road gives access to the entrance-hall, and from this hall staircases lead down to the gymnasium, and up to the public hall, and to the reading-rooms, library, &c. On the ground floor, on either side of the entrance-hall is a shop, with cellar below, and in the rear of the shops are the secretary's office and a small class or waiting room. On the first floor are the lecture-room or library, 28 ft. by 19 ft., and two reading-rooms. On the second floor are provided residential apartments for the secretary, committee-rooms, &c. The gymnasium has a floor-space of 70 ft. by 40 ft. At the Grange-road end is a visitor's gallery, and along the west side there are dressing and bath-rooms. The public hall, 86 ft. by 40 ft., and accommodating over 900 persons, is placed over the gymnasium, and has a gallery at the Grange-road end, while there are four class-rooms and retiring-rooms from the public hall. Caretaker's rooms and ample cellarage and store-rooms are provided in the basement, and lavatories and conveniences in various parts of the building. The public hall, gymnasium, and dressing-rooms are heated by hot-water, and the reading-rooms, library, and class-rooms with open fireplaces. The rooms are ventilated by fresh-air inlets and foul-air extracting flues. The architect is Mr. William Wallis Baldwin, of London, under whose supervision and that of Mr. J. C. Ogle, jun., the work has been carried out by Mr. Alexander Bleakley, of Birkenhead.

Church Restoration at Castle Bromwich.—On the 30th ult. the Church of SS. Mary and Margaret, Castle Bromwich, was reopened, after being closed for two months, during which time various works have been carried out. These comprise some structural repairs, a scheme of decoration by Mr. John Taylor, of Edgbaston; the placing of a marble pavement and steps in the sanctuary by Messrs. Bennett; and the insertion of four stained-glass windows. The windows have been executed by Messrs. Ward & Hughes, of London, the canopy work being designed by Mr. Bateman, of Birmingham, the architect under whose superintendence the work has been carried out.

Memorial Screen, Peebles.—There has just been completed in the Parish Church, Peebles, a chancel memorial screen, the gift of Mr. R. T. Hamilton Bruce, of Edinburgh. The screen consists of three bays, each being divided into two portions by a representation of a tree stem, spreading out into branches, leaves, and fruit in the cusped head of the bay respectively, the vine in the centre, with apples and pomegranates on the sides. In the bays at left and right are painted the Ten Commandments. Above the bays are nine spaces or niches, each being filled with a kneeling figure representing Truth, Charity, Hope, &c. The work has been executed by Messrs. Cottier & Co., of London.

St. Paul's Church, Greenock.—It has been decided by the congregation of the iron church in Newark-street, Greenock, to erect a permanent church on the site at the corner of Bentinck and Newark-streets. Dr. Rowand Anderson, of Edinburgh, was entrusted with the preparation of the designs. The church consists of a nave 90 ft. long, 31 ft. broad, a choir of 30 ft. long and 21 ft. broad. At the west end is a vestibule, and on the north and south sides of this porches and stairs for access to a gallery over the vestibule. The nave is divided into six bays, five of which open into a narrow aisle on each side, serving only as a passage. On the north side, and occupying the space of two bays, is a transept. The choir has a north and south aisle. The one on the north side will be set apart for the organ. As the ground falls from west to east, advantage is taken of this to provide a hall under the choir and aisles, and vestry, session-room, lavatories, &c., under the north transept. Provision is made for the erection of a tower to the north of the choir aisle. The church will be lighted by the clearstory and large windows in the gables. The principal entrance is by a pointed arched doorway, flanked by windows which light the vestibule. The window above consists of eight lights. The window in the east gable is composed of six lights, with tracery. The gable is flanked with buttressed pinnacles terminating with crocketed spires. The aisles of nave have no windows, but each bay of the nave has a large three-light pointed window, with buttresses between. The tower is to be 40 ft. square at the base, 115 ft. to the top of the tower, and 180 to the top of the vane of the spire. The roofs, which will be covered with green slates, have their principal constructive parts made of steel. Pointed wood ceilings are framed on the under side, and divided into panels by mouldings. the main ones rising from stone shafts which rise from the floor.

New Theatre, Newcastle.—The new Empire Theatre of Varieties in Newgate-street, Newcastle, was opened on Monday. The new theatre consists of pit, with stalls separated from it by folding chairs. Above this is the first circle. On the second-floor are the private boxes. The upper balcony is on this level, and is provided with sitting and standing accommodation. The proscenium is nearly 30 ft. wide. The entire building is lighted by electricity. Ample exits are provided from every part of the house, all doors either sliding or opening outwards. Refreshment-rooms and cloak-rooms are provided on each floor. The general contractor is Mr. Alexander Pringle, of Gateshead. Messrs. Charlton & Co. are the electrical engineers. The whole of the works have been designed by Messrs. Oliver & Leeson, architects, of Newcastle.

A New Church for Tynewydd.—On the 27th ult. the ceremony of laying the foundation-stone of a church at Tynewydd was performed by the Countess of Dunraven. The church is designed to accommodate about 400 worshippers. It consists of a nave, 63 ft. 6 in. long by 25 ft. wide, chancel, and organ chamber and vestry. The nave is lighted from the west by a five-light window, with foliated heads, and the north and south walls are pierced with two-light Early English windows, set alternately in the bays between the buttresses. The chancel has a three-light window with foliated heads, and two small traceried lights in the north wall. A sedilia and credence are shown on the south side of the chancel. The roof internally will be open to the apex, and constructed of unvarnished pitch-pine. The chancel roof is similar. The seating and furniture are to be of pitch-pine, and varnished. Externally the walls will be faced with grey stone, and the jambs and arches of the doors and windows are to be worked out of Bath stone. The roof, which is to be covered with green slates and a red tile ridge cresting, will be broken over the chancel with a bell-flèche. The church, including the whole of the seating and furniture, heating apparatus, and boundary-walls, will cost 1,500*l.* The architect is Mr. E. M. Bruce-Vaughan, and the contract is let to Mr. John Haines, of Cardiff.

Pontypridd Free Library.—On the 27th ult. the Pontypridd Free Library was opened by Mrs. D. W. Williams, Fairfield. The building, which was erected at a cost of 2,000*l.*, from designs by Messrs. Potts, Sulman, & Hennings, of London, is situated in Gelliwastad grove. Mr. Julian, of Pontypridd, carried out the contract.

NEW WESLEYAN CHAPEL, DOWNDERRY.—A new Wesleyan chapel has just been opened at Downderry, Cornwall. The new chapel is built of local stone, much of which was raised from the site itself. The exterior is covered with Portland cement, varied by the red brick quoins and arches of the windows. It measures 58 ft. by 34 ft., and the height is 20 ft. It will seat about 200 persons, and is lighted with thirteen windows of Gothic design, glazed with straw-coloured cathedral glass. The building is roofed with Delabole slate and is furnished with a rostrum and seats of pitch pine, mixed with American red pine, varnished. Mr. H. J. Snell, of Plymouth, is the architect, and Mr. T. E. Madams, of Liskeard, the contractor.

WESLEYAN SCHOOLS, WILLENHALL.—The new Wesleyan schools, Willenhall, have just been rebuilt on an enlarged scale, at a total cost, including fittings and furniture, of 2,000*l*. Mr. Benjamin Baker, of Willenhall, is the architect.

CHURCH RESTORATION AT WELSH ST. DONATS.—The Church of Welsh St. Donats, near Cowbridge, Glamorganshire, is now to undergo substantial restoration. It is reported to be quite unfit for use at present. The tower and bell-framing is to be made good, and the works will comprise new floors, and passages in the tower, nave, and chancel, new heating apparatus, new pulpit, lectern, altar, and seats, complete restoration of the old oak roofs, a new roof on porch, new chancel seats, and new oak doors, &c. A faculty has been applied for, and the architects who have been entrusted with the work are Messrs. Kempson & Fowler, of Llandaff.

SANITARY AND ENGINEERING NEWS.

MATLOCK BRIDGE WATERWORKS.—A report has been received from Mr. W. H. Radford, C.E., of Nottingham, in which he advises the company to take an additional spring from the Yoredale Grit. The spring yields 68,580 gallons a day, in dry weather. The water has been analysed by Dr. Frankland, and found to be of extraordinary purity and softness. The company have applied to the Board of Trade for a Provisional Order to increase their capital from 7,500*l*. to 20 000*l*.

ELECTRIC LIGHTING AT WOKING.—The growing town of Woking, which has hitherto been without any form of public lighting for streets or houses, has now adopted the electric light under the auspices of the Woking Electric Supply Company, Limited, of Palace-chambers, Westminster. A suitable site for the works has been secured on the north side of the London and South-Western Railway, in the vicinity of the London and Basingstoke Canal. Here substantial brick buildings have been erected, comprising boiler-house, engine and dynamo-house, offices, and stores, containing at present a plant capable of dealing with 4,000 lights, consisting of two multitubular externally-fixed boilers, fitted with donkey-pumps, circulating and feed-tanks on columns, &c. The engine and dynamo-house is a large and lofty building, containing two high-speed triple-expansion vertical condensing-engines, capable of indicating about 100-horse-power each (with a boiler-pressure of 150 lbs. per inch), at a speed of 340 revolutions per minute. The engines are coupled direct to two Kingdon alternators, wound for high tension of 2,000 volts; the magnets of these are excited by a continuous-current dynamo, driven by a belt. Each dynamo has a capacity of 30 ampères at a tension of 2,000 volts, or 60 killowatts or Board of Trade units. The transformer system is in use in the district. The mains are insulated cable laid at the road sides in stoneware pipes. The dynamo house contains all necessary distributing and regulating apparatus, together with electrical instruments and gauges. A 6-ton travelling crane spans the entire engine and dynamo house and is available for lifting the machinery. The plant as at present fixed is intended to supply 2,000 lamps in duplicate, but arrangements have been made with the view of extension as occasion may require. Water for feed and condensing purposes is obtained from and returned to the Canal by means of underground pipes delivering into a sump below the cistern, to which it is raised by a special auxiliary pumping engine, which also works the air pump of the condenser. From the tank the water flows to the surface condenser, and thus returns to the canal uninjured. The boilers, engines, dynamos, tank, water-heater, and crane were made by Messrs. King, Masterman, & Terry, of Kidsgrove, Staffordshire, under the management of Mr. S. H. Terry. Mr. G. Mann, the Secretary of the Woking Electric Supply Company, Limited, has superintended the erection of the plant, and has contended successfully with the many local difficulties incidental to the starting of an electric installation. Light has been given regularly since November 1.

TAYPORT SEWERAGE, SCOTLAND.—The sea outfall works here have just been completed at a cost of 3,080*l*. The population of Tayport is about 3,000, and the contract has included new pipe sewers in every street. There are two sea outfalls into the tidal estuary of the Tay. All gases generated in the sea outfalls have been disconnected from the town sewers. The sewage discharges by gravitation at all states of the tide, and, therefore, no storage is required. Street surface-water is admitted to the sewers. The sewers are flushed with brook water. The Commissioners have expressed themselves well satisfied with the efficient working of the scheme, and with the fact that the actual cost has proved less than the estimate. The engineer to the works is Mr. W. H. Radford, C.E., of Nottingham, and the design was chosen in open competition. The contractors were Messrs. McKay & Son, of Broughty Ferry, near Dundee.

STAINED GLASS AND DECORATION.

ST. PAUL'S CHURCH, WESTLEIGH.—On the 29th ult. three stained glass windows were unveiled at St. Paul's Church, Westleigh. The windows, which are placed in the south-west wall of the church, have been executed by Messrs. Heaton, Butler, & Bayne, of London.

NEW WINDOWS, ST. JAMES'S CHURCH, GLOSSOP.—Two windows, in memory of the three brothers Wood, and Mr. John Wood, have just been placed in St. James's Church, Glossop. They have been executed by Mr. A. O. Hemming, of London, and represent the two apostles, St. James, the patron saint of the church, and St. John, and the two prophets, Samuel and Daniel. In the upper part of the windows are angels bearing scrolls.

FOREIGN AND COLONIAL.

FRANCE.—The Commune of Thiais has opened a subscription for a monument to soldiers who died in the Franco-German War and are buried in the cemetery of that town.——The Museum of Montpellier is to have a marble statue of Cabanel, to be executed by M. Antonin Mercié.——The Town Council of Lyons has decided to offer to Besançon a plaster model of the figure of the Republic which surmounts the monument in the Place Carnot.——The Conseil Général du Rhône has adopted a project for a railway line from Croix Rousse to St. Etienne.——The Ministre des Travaux Publics intends to ask the Government for a vote for the formation of a new railway line between Dieppe and Hâvre. There is also talk of a new line between Beaune-la-Rolande and Etampes. This line, of a length of 400 kilomètres, would pass by Pithiviers.——The Ministre de l'Instruction Publique has promised a subvention of 15,000 francs towards the Jeanne d'Arc Monument at Reims.——M. Louis Cazal has arranged at Toulouse a competition in sculpture and painting to coincide with the opening of the Exhibition there on March 15, 1891. The competition is intended especially for artists belonging to the south of France who have received medals at the Salon.——At the request of Municipality of Pau, M. Alphand has promised his assistance in the works that are to be undertaken for the embellishment of that town. He will go to Pau next month, accompanied by M. Laforcade, gardener-in-chief to the City of Paris, who laid out the Champ de Mars for the great exhibition.——At the commencement of next month the Colonial Museum at the Palais d'Industrie will be reopened.——A certain number of former pupils of the École des Beaux-Arts and of the École Centrale des Arts et Manufactures, in concert with the architects of Limousin, have founded a local or rather regional society of Architects of Limousin, which will include the districts of Haute Vienne, La Creuse, and La Charente. The President will be M. Geay, Inspecteur des Édifices of the diocese of Limoges, supported by MM. Texier and Mallet, architects, at Limoges, who will act respectively as Secretary and Treasurer.

BERLIN.—The municipality have voted 1,800,000 marks for the construction of unloading quays on the Landwehr Canal, which passes through the city and over which most of the water traffic to the capital passes.——Among the many hospital schemes now on hand, another for a so-called "Domestic Servants' Hospital" has now come to the foreground, the municipality having voted the cheap sale of a site of 7,000 square mètres superficial area for the proposed building.——A workingmen's covered swimming-bath is to be erected here at a cost of 368,000 marks.——From a corrected statement, just published, it appears that the total cost of the Berlin Metropolitan Railway, after allowing for land held and for disposal, amounts to 60,538,000 marks, of which 27,199,000 marks is for property acquired and 33,339,000 marks for cost of construction. The total length of the railway, with its east and west junctions, being 12·145 kilomètres (7½ miles), the expenditure has been at the rate of about 5,000,000 marks per kilomètre, or nearly 400,000*l*. per mile.

VENEZUELA.—Some new railroad lines, having together a total length of 500 kilomètres, the construction of which embraces some difficult pieces of civil engineering, are being carried out according to the designs, and under the supervision, of the German engineer, Carl Plock. Most of the materials required are being ordered in Germany,—the rails from Krupp, the ribs of the metal viaducts from the "Friederick-Wilhelm Knette," the rolling-stock from a firm in Deutz, &c.

WARSAW.—An international competition, apparently, as the advertisement of competition is in German, Austrian, Swiss, and Russian papers, has been opened for the purpose of obtaining suitable designs for a large terminus building to the Vienna-Warsaw Railroad Line. A jury of nine members has been appointed; the first three premiums are 3,000, 2,000, and 1,000 rubels; three extra prizes 500 rubels each. The latest date for sending in designs is May 8 to 20, 1891. Particulars can be obtained at the "Direction der Warschau-Wiener Bahn," Warsaw.

BREMEN.—The Municipality intends having a system of electric lighting laid, and after due consideration of several competition schemes, has decided to have the work done by Messrs. Siemens & Halske, of Berlin, whose tender amounted to 1,500,000 marks, or nearly 75,000*l*. The firm arranges its apparatus and lines for 25,000 incandescent lamps, besides the arc lights for street illumination.

SPANDAU.—The military authorities have decided on erecting 1,350 dwellings for the families of workmen employed at the Royal Small Arms Factories.

SIAM.—The proposed first Siamese railroad (Bangkok — Bang-Pa-In — Ajuthia — Saraburi — Korat; total length, 268 kilomètres), which is to be carried out by a German Government engineer (on furlough), Herr "Baurath" Bethke, is now going to be taken in hand. In our Prussian contemporary, the *Centralbl. der Bauv.*, the Siamese Government informs German contractors of its intention of asking for tenders for construction of this railroad a few months hence, and states that it might be advisable for would-be competitors to now inform themselves on the spot as to the nature of the work, the months December to February being suitable for such a trip of investigation. The notice mentions that, according to the present state of "the preliminary works," some 4,000,000 cubic mètres of soil and 200,000 cubic mètres of rock will have to be moved, and that some 55,000 cubic mètres of brick and stone work, 8,000 cubic mètres of wood will be required. The Bangkok-Ajuthia line will have to be in working order two years hence; the whole line within five years. We hear that the Siamese Government is trying to obtain the services of several young German engineers, and is offering salaries of from 600*l*. to 750*l*. per annum.

MISCELLANEOUS.

NEW HARBOUR SCHEME, DOVER.—In a Parliamentary notice which has been published, details are given of the scheme for the enlargement of Dover Harbour, which the Dover Harbour Board propose to carry out with the sanction of Parliament. Powers are to be applied for to enable the promoters to erect a new pier in continuation of the Admiralty Pier, extending eastwards for about 580 ft., and terminating in the sea. Also to construct another pier, to be called the East Pier, which will terminate in the sea about 640 ft. from the existing head of the Admiralty Pier. Provision is to be made in the Bill for the erection of sea-walls for the purpose of reclaiming a part of the foreshore and a portion of the bed of the sea lying between the Admiralty Pier and the existing South Pier. It is intended also to construct two short piers or jetties at this part, which will extend 425 ft., or thereabouts, in the sea. The cost is proposed to be covered by means of a poll-tax of 1s. a head on Continental traffic, realising the sum of 300,000*l*. when capitalised as a contract amount for the work to be executed.

LONDON PROPERTIES FOR SALE.—Two well-situated freehold properties are about to be put up for sale by auction at the Mart. On the 11th inst., by order of the Commissioners of Her Majesty's Works and Public Buildings, the premises lately occupied by the Inland Revenue Department, on Tower-hill, and extending through to Great Tower-street, to which the frontages are about 77 ft. and 37 ft. 6 in. respectively. The premises have cartway entrances in both thoroughfares, extensive basement and cellarage, and a large inner courtyard. They cover an area of nearly 10,000 ft. superficial, and rise in part to four floors in height. In course of February next, the premises being Nos. 423 and 424, Strand, with a frontage of 20 ft. thereto, now leased at 300*l*. a year, together with the return in Bedford-street, being Nos. 2 and 3, the Bedford Hotel, having a frontage of 122 ft., and leased at 170*l*. per annum. The present leases will expire at Midsummer next. The total area amounts to 2,650 ft. superficial.

ROYAL INSTITUTION.—The following are included in the lecture arrangements before Easter:—Professor Dewar, six Christmas Lectures to Juveniles, on "Frost and Fire;" Professor C. Meymott Tidy, three lectures on "Modern Chemistry in relation to Sanitation;" Mr. W. Martin Conway, three lectures on "Pre-Greek Schools of Art;" the Right Hon. Lord Rayleigh, six lectures on "The Forces of Cohesion." The Friday evening meetings will begin on January 23, when a discourse will be given by the Right Hon. Lord Rayleigh on "Some Applications of Photography;" succeeding discourses will probably be given by the Right Hon. Lord Justice Sir Edward Fry, Professor J. W. Judd, Professor A. Schuster, Dr. E. E. Klein, Mr. Percy Fitzgerald, Dr. J. A. Fleming, Dr. Felix Semon, Professor W. E. Ayrton, and other gentlemen.

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised	Premium.	Designs to be delivered.
*New Court House, Peel	Isle of Man Govnmt.	20*l.*	Jan. 15

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Dwelling-houses, Graeme-street	Glasgow Impt. Trust	*Official*	Dec. 9
Supply of Rails	India Office	do.	do.
Steel Rails, Boilers, Wrought-iron Work, Bolts, &c.	Bombay, Baroda, and Cent. India Ry. Co.	do.	do.
*Roadmaking Works	Lewisham Bd. of Wks.	do.	do.
Cast-iron Gas and Water Pipes	N. E. Ry. Co.	do.	do.
Pipe Sewer, Settling Tanks, &c. Westerton	Wakefield R.S.A.	Frank Massie	do.
Two Semi-detached Houses, Southowram, Yorks		Arthur Shoesmith	do.
Six Pairs of Cottages, near Rockingham Colliery, near Barnsley	Newton, Chambers, & Co. Ltd.	Walter J. Sykes	do.
*Making-up and Paving Roads	Willesden Local Board	O. Claude Robson	do.
*Supply of Broken Granite	Southampton Corp.	W. G. B. Bennett	do.
Drain Pipes, Bricks, Cement, &c.	Macclesfield Local Bd.	*Official*	Dec. 10
*Removal of Dust, Dirt, Ashes, &c. &c.	Crown Estate Paving Commrs.	do.	do.
Street and Passage Improvements	Stretford (Manchester) Local Board	Mr. Royle	do.
Detached House, New Leeds		Richd. Wood	do
Two New Streets, Bangor, Ireland	R. E. Ward	John Russell	do.
Supply of Timber	Newcastle-on-Tyne Crp.	*Official*	Dec. 11
Granite or Whinstone Macadam	Wakefield Corp. ration	Richd. Porter	do.
*Works, Repairs, &c., to Station Buildings (three years)	G. E. R. Co.	Jno. Wilson	Dec. 12
Pair of Semi-detached Villas, Wetheral, Carlisle	N. S. Hawks	T. Taylor Scott	do.
River Wall, Embankment, South side of River Clyde	Glasgow Town Council	A. B. M'Donald	do.
Road Metal	Northumberland C. C.	H. F. Sneyd-Kynnersley	Dec. 13
*Works and Materials	Parish of St. George, Hanover-square	G. Livingstone	do.
Alterations to Property, High-street, Forres, N.B.		A. & W. Reid	do.
Alterations, &c. to Inn, Alfoldsars, Loxwood, Sussex		Wm. Buck	do.
Extension of Harbour Office	Belfast Harbour Com	W. H. Lynn	Dec. 15

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Alterations, &c. to Manse and Offices, Beharrie, Keith, N.B.	The Heritors	Mr. Robertson	Dec. 15
*Slop Waggons	St. Mary (Islington) Vestry	*Official*	do.
*Brick Sewer	Kensington Vestry	do.	do.
New Streets, Sewering, Kerbing, &c.		do.	Dec. 16
Builders' Materials, &c.	South Metropolitan District school	W. Sugden & Son	do.
*New Head Post-office at Leeds	Com. of H.M. Wks, &c.	*Official*	do.
Iron and Steel Castings, &c. Trimdon Grange, Durham		do.	Dec. 17
*New Works at Heaton	W. Scott		do.
* Ditto (Ironfounders' Work)	N. E. R. Co.	W. Bell	do.
*Heating Apparatus		do.	do.
*Re-construction of Laundry, Endell-street	Essex County Council	*Official*	Dec. 18
*Artisans' Dwellings, Swansea	The Commissioners	J. Waldram	do.
Police Station, Saltash	The Directors	E. Bath	Dec. 20
Temperance Hall, Restaurant, Offices, &c. Coleraine, Ireland	Cornwall C. C.	H. J. Snell	do.
Storage Reservoir			
*New Entrance to Tyne Dock	Morley Corporation	Young & Mackenzie	Dec. 30
Constructing Breakwater, Glasgow	N. E. R. Co.	Chas. Gott	Jan. 1
Restoration of Welsh St. Donat's Church, near Cowbridge, Glam.		J. W. Barry	Jan. 14
Oval Drain (390 yds.), Gateshead	Allhusen's High Works	H. W. Lewin	No date
Timber, Steelwork, &c. Newcastle	Strakers & Love	Kempson & Fowler	do.
Eight Houses, Leeds	Ellison Bros.		do.
Ironwork, Brass Fittings, &c.	Birmingham Corp.		do.
Excavators' Work	T. & W. Smith		do.
Well-Sinking, Pembrey, Carmarthenshire	Elliott's Metal Co Ltd.	*Official*	do.
			do.
			do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary	Applications to be in
*Building Inspector	Hornsey Local Board	3*l* 3s.	Dec. 8
*Clerk of Works for Repairs	School Bd. for London	150*l.*	Dec. 13
*Teachers	Carpenters Institute, Stratford	160*l.* and 140*l.*	Dec. 16
*Clerk, Surveyor, and Collector	Carnarvon Harb. Trst.	150*l.*	Dec. 17
*Borough Surveyor	Worthing Twn. Coun.	250*l.*	Dec. 22
*Two Senior Draughtsmen	Inspector-General of Fortifications	3*l* 10s. weekly	No date

Those marked with an Asterisk (*) are advertised in this Number. Competition, p. iv. *Contracts, pp.* iv. *and* vi. *Public Appointments, p.* xviii.

A Tall Tower for Blackpool.—It is stated that arrangements have just been completed at Blackpool for the erection of a tall tower. The block of buildings comprising the Aquarium and the Beach Hotel, in the centre of the Promenade, has been purchased for 60,000*l.*, and a company for the erection of the tower will shortly be floated, with a capital of 150,000*l.* The tower, as already projected, will be about 500 ft. high, and will include six platforms, with large halls for entertainments and other purposes.

Sanitary Inspector for Perthshire.—At a meeting of the Finance Committee of the Perthshire County Council on the 28th ult., Mr. George M'Kay, Sanitary Inspector, Girvan, was appointed by a large majority Sanitary Inspector for the county of Perth, at a salary of 300*l.* per annum, with expenses.

Sanitary Appointment at Birmingham. — On the 28th ult. the Health Committee appointed Mr. William Holt, of Rochdale, Superintendent of the Interception Department. Mr. Holt was manager to the Rochdale Sanitary Works, and was previously manager of a large engineering works at Rochdale, and constructed for that Corporation the machinery for dealing with the night soil of the borough. There were 196 candidates for the position. The amount voted to the post by the Council is 350*l.* per annum. Mr. Wilkinson, when he left the office of superintendent, was receiving 400*l.*

Liverpool Engineering Society.—The third ordinary meeting of this Society for the present Session was held at the Royal Institution, Colquitt-street, on the 26th ult., Mr. Ferdinand Hudleston, Assoc. M.Inst. C.E., President, in the chair. After the election of several new members, a paper was read by Mr. G. L. Addenbrooke, M.Inst. C.E., of London, entitled "The Distribution of Electricity from Central Stations." Mr. Addenbrooke first dealt with the conditions required for the proper working of incandescent lamps and the laws which regulate the flow of the current in the mains, and then passed on to a consideration of the difficulties which arise, first, from loss of energy in the conductors, and secondly, from difference in pressure in conductors, and of the manner in which these difficulties are surmounted. He then described in turn the use and arrangement of feeders, the three-wire system, the use of accumulators in central stations, the alternating system, and the construction and use of converters. He also gave a description of the mains on the low and high pressure systems, of arc lamps, and of meters, and concluded his paper, which was illustrated by experiments and diagrams, with some general remarks upon the whole subject. The paper was listened to with great interest by a large number of members, and upon its conclusion an animated discussion took place upon various points, principally upon the merits of the two systems, high tension and low tension. A vote of thanks to Mr. Addenbrooke terminated the proceedings.

Business Changes.—We have received a notification that the partnership heretofore subsisting between Mr. William Hayward and Mr. William Eckstein, carrying on business at Nos. 187, 189, 191, and 193, Union-street, in the borough of Southwark, under the style or firm of Hayward Brothers & Eckstein, has been dissolved by mutual consent, as and from June 30, 1889. All debts due to and owing by the late firm will be received and paid by Mr. Eckstein.——Messrs. Lawford & Sons, of College and Devonshire Wharves, Great College-street, Camden Town, inform us that they have taken over, as from the 1st inst., as a branch concern, the old-established business carried on at Cowley Wharf, Hoxton, by the late Mr. Thomas Capon.

Society of Biblical Archæology.—The anniversary meeting of this Society will be held at 9, Conduit-street, Hanover-square, W., on Tuesday, January 13, 1891, at 8 p.m., when the Council and officers of the Society will be elected, and the usual business of the anniversary meeting transacted.

The Institution of Electrical Engineers.—The annual general meeting of this Institution will be held at the Institution of Civil Engineers, 25, Great George-street, Westminster, on Thursday next, December 11, at 8 o'clock in the evening, for the reception of the annual report of the Council, and for the election of Council and officers for the year 1891.

Turin Exhibition. — The international jury assessing the exhibits of Division IV. of the Turin Exhibition have awarded sixteen diplomas, three gold, and six silver medals, and have also given fourteen honourable mentions, and twenty-three ordinary commendations. Of the sixteen diplomas seven have fallen to municipalities in Germany (Berlin, Halle a. S., Hamburg, Leipsic, Magdeburg, Munich, and Worms); three to municipalities in Austria (Krakau, Trieste, Vienna); two to government departments, and two to municipalities in Italy (board of health, prison authorities,—Milan, Turin); one to Russia (Warsaw), and one to England (London). The three gold medals fell to municipalities in Italy (Bologna, Ferrara, Spezia).

Society of Engineers.—At a meeting of the Society of Engineers, held at the Town Hall, Westminster, on Monday evening last, Mr. Henry Adams, President, in the chair, a paper was read by Mr. J. J. F. Andrews, M.A., "On Ship Caissons for Dock Basins and Dry Docks." The author prefaced his paper by a general review of ship caissons generally in use for dock basins and dry docks, and pointed out the progress of caisson construction from the early caissons closing entrances of from 40 to 50 ft. openings, and 20 ft. of water over sill, to those now in use in some of Her Majesty's and other dockyards, closing entrances of from 90 to 95 ft., and having water over the sill of some 36 to 38 ft., and a depth from sill to coping of 40 to 45 ft. He then reviewed the improvements and alterations in design as to construction, methods of working, from the caisson floating with the bottom buoyancy, and sinking by water admitted to the bottom or interior of the caisson (the water so admitted being pumped out or run into the dock when raising), to the caissons with watertight decks, forming an air-chamber, and having a top tank to contain water for sinking. He then reviewed the question of stability under different conditions of construction, as to quantity of ballast required for safe working, and the conditions of flotation, as regards position of metacentre centre of gravity, and centre of buoyancy of flotation, and stated generally that for a caisson floating with bottom buoyancy the common centre of gravity of caisson, ballast, and all the weights should be at same determinate distance below the metacentre, and, with the caisson floating with air-chamber, the common centre of gravity of caisson, ballast and all the weights should be from between 1 ft. to 2 ft. below the centre of flotation of air-chamber, and all the parts immersed; and he then gave as a general approximate rule for the height or position of the metacentre, above the centre of buoyancy at which the caisson is floating, as $\frac{B^2}{d} \times \cdot 08$, where B = breadth of caisson at which it floats, d = draft of water; this formula being for the ship shape only. The author explained the relative values of six different types of caissons, as to design, construction, method of working, stability of flotation, use, &c.

The English Iron Trade.—The English iron market continues very quiet, with no prospect of an improvement this side of the New Year. Pig-iron has been dull during the past week. The Glasgow and other warrant markets have been flat, and prices of pig-iron generally have shown a downward tendency. Middlesbrough pig has been quoted from 1s. to 2s. a ton lower, with little business doing, however, even at the lower figure (43s. 6d.). Manufactured iron is equally depressed, and concessions can be obtained for good orders. Welsh bars have been reduced 5s. a ton. The demand for steel is better, comparatively, than for finished iron, but weakness characterises the market. Shipbuilders and engineers keep well employed.—*Iron.*

Electric Lighting.—We understand that Messrs. Dickinson & Co., of Hanway-street, have secured from Mr. Norman Forbes a contract to install the electric light throughout the Globe Theatre.

MEETINGS.

Saturday, December 6.

The Association of Public Sanitary Inspectors of Great Britain.—Mr. J. C. Swinburne Hanham on "Cremation as a Mode of Disposing of Our Dead." 6 p.m.

Monday, December 8.

Surveyors' Institution.—Adjourned Discussion on Mr. T. A. Dickson's paper on "The Labour Question as regards Agriculture." 8 p.m.

Society of Arts (Cantor Lectures).—Professor Vivian B. Lewes on "Gaseous Illuminants." III. 8 p.m.

Leeds and Yorkshire Architectural Society.—Mr. F. Clibborn on "Normandy." 7.30 p.m.

Tuesday, December 9.

Institution of Civil Engineers.—Mr. F. W. Stoney, M.E., on "The new Chittravati Bridge, Madras Railway." 8 p.m.

Wednesday, December 10.

Society of Arts.—Mr. F. Bailey on "Electric Lighting Progress." 8 p.m.

Society of Engineers. — Annual Dinner, Holborn Restaurant. 6 p.m.

St. Paul's Ecclesiological Society.—Objects of Ecclesiological interest to be exhibited and described. 7.30 p.m.

Liverpool Engineering Society.—Discussion on some questions of Engineering interest in connexion with Refrigerating Apparatus. 8 p.m.

THURSDAY, DECEMBER 11.

Institution of Electrical Engineers.—Annual General Meeting. The following papers will be further discussed:—"The Efficiency of Secondary Cells," and "The Chemistry of Secondary Cells," by Professor W. E. Ayrton, F.R.S., and Mr. E. W. Smith. 8 p.m.

Society of Antiquaries.—8 30 p.m.

Dundee Institute of Architecture.—Principal Peterson, M.A., LL.D., on "Ancient Sculpture." 8 p.m.

FRIDAY, DECEMBER 12

Architectural Association.—Ordinary Meeting. 7.30 p.m. Special Business Meeting. 7.45 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

20,729.—OPEN FIREPLACES: *J. Knight.*—This patent refers to an invention especially intended for common ovens and boilers in artizan's dwellings, and consists of a plate offering a large heating surface. It is placed nearly on a level with the top of the oven and boiler, and forms a small semi-cooking range. It is also useful for heating irons, several can be made hot at once much quicker than in front of the fire.

20,947.—MARBLE-SLABS FOR WASHSTANDS: *H. C. Askwith.*—The improvement which is the subject of this patent, consists of a bevilled groove round the whole or part of the slab, placed near the outer edge in a plain fancy or ornamental manner, with a driblet in front and holes or outlets at front or sides for drawing off the water.

481.—SHOP-FITTING BRACKETS: *E. G. Burtwell.*—"Rise and fall" brackets are made in two parts, joining at a point where the set screw is placed to govern or control the sliding of the brackets. The two parts are sometimes joined so as to produce a long rack bracket, and detachable eye-pieces may also be adjusted as required.

497.—DOOR CLOSER: *Jean Gignez.*—In piston and spring-door closers the improvements relate to the construction of the piston, which is moved backwards and forwards in the brake cylinder, and to the combination of parts which enable the apparatus to be quickly fixed, and the door to be opened at an angle of 180 deg.

3,325.—CHIMNEY TOP: *W. Summerson.*—The chimney-pot which is the subject of this patent is made with a cone-shaped covering, and with flutings and pockets to assist the draught and prevent the down-draught. These are so arranged that they prevent the wind getting down the chimney. It escapes by the flutings and top pockets. If the wind is blowing in an upward tendency it goes through the pockets in an upward direction, and out at the top of the pockets.

14,427.—CHIMNEY TOPS: *K. McKenzie and others.*—According to this invention, a flue made narrower at the bottom than at the top, is made of metal or fireclay. Inside this there is fixed a small tube, the lower end of which fits into a hole in the underside of the flue. At the upper end the tube fits into a bell-shaped mouth. This latter pipe is supported by three or more arms, and a cover is placed over the top of the chimney-pot.

14,446.—OVERMANTELS: *C. A. Franklin.*—The parts of the overmantel which is the subject of this patent are all in separate pieces, afterwards put together so as to form a whole. This method of construction allows the overmantels to be easily put together or taken apart, and also admits of variation in the design of any one overmantel, as the position of the shelves and other parts in the same overmantel may be changed. The structure is secured together by screws.

NEW APPLICATIONS FOR LETTERS PATENT.

November 17.—18,493, E. Reilly, Mechanism for Loading Carts with Sand, Gravel, &c.—18,518, J. Wilson, Plaster.—18,520, A. Crosnier, Doors and Windows.—18,553, G. Meyer, Door Springs.

November 18.—18,574, A. Drummond, Glazing Structures.—18,603, T. Arnold, Manufacture of Cement.—18,628, G. Ghilain, Drying of Wood.—18,643. S. Bourne and G. Leonard, Fireplaces or Stoves.—19,667. H. Heiland and J. Knufmann, Scaffolding.—18,672, E. Ward, Jointing the Ends of Pipes.

November 19.—18,679, H Brookfield, Flushing Water-closets.—18,725. E. Ward, Flush-cisterns.—18,742, J. Idrac, Parquet Flooring, &c.

November 20.—18,755, W. Junge, Saws.—18,768. A. Smith, Exhaust Ventilator and Chimney-pot.—18,774, J. Welch and W. Owen, Utilization of Granite Rock, &c., for Making Bricks, Tiles, &c.—18,787, W. Calway, Ventilating Roofs.—18,796, J. Benford, Locking Sash-fastener and Electrical Alarm and Indicator for Windows, Doors, &c.—18,805, W. Forster, Door-fastenings, &c.—18,818, A. Steele, Stoves or Fire-grates.—18,822, G. Anderson, Tip-Wagons.

November 21.—18,833, R. McAlpine, House Building.—18,886, A. Gonsaloes, Staircases.—18,893, F. Ludewig, Indicator and Locking Device for Doors.—18,924, A. De St. Dalmas, Paving-blocks.—18,927, G. Webley, Effecting Escape from Burning Buildings.

November 22.—18,939, R. Gregory and H. Harris, Ventilating Air-pipe and Cowl.—18,931, W. Stevenson, Plastic Brick-making Machines.—18,058, J. Bayly, Paint Mill.—18973, D. Lee, Window-fastener.—18,982, H. Doulton and S. Leech, Tiles, Moulded Blocks, &c.—18,992, W. Smartt, Drying or Burning Bricks, Tiles Pipes, &c., in Clamps, Kilns, &c.

PROVISIONAL SPECIFICATIONS ACCEPTED.

6,237, T. Jones, Dispensing with the use of Weighted Sash-lines and the Ordinary Sash-fasteners.—16,086, F. Scholes, Automatically Flushing and Disinfecting Water-closets, &c.—16,131, J. Payne, Kiln.—16,147, C. Gabriel, Flushing Cisterns.—16,650, B. Nicklin, Draught and Ventilating Cowls for Smoky Chimneys.—16,678, W. Mansbridge, Ventilation of Buildings, Sewers, Shafts, &c.—16,695, W. Wilson, Converting an Ordinary Open Fire-grate into a Close Range.—16,801. P. Hollick, Corded Cement Sack.—16,883, R. Allen & J. Evans, Clamping and Lifting Apparatus for Parquet Flooring, &c.—17,008, L. Tirard, Automatically Opening and Closing Windows, &c., according to the temperature.—17,069, J. Baly, Floor Jack.—17,061, J. Baly, Carpenters Reil Gauge.—17,206, J. Wilson and others, Sliding Windows.—17,335, J. Galley, Burning Cement, &c.—17,554, G Baker, Fire-grates and Furnaces.—17,893, B. Barker, Raising and Lowering Windows, &c.—17,950, H. Heims, Stoves.—17,967, J. Newton, Mountings for Rotary Ventilators and Chimney Cowls.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to Opposition for Two Months.

18,174, G. Diggens, Window Fastening.—423, B. Silverlock, Ventilating Sewers, &c., and purifying and rendering innocuous the air and gases withdrawn from them.—1,054, J. Cornell, Fastening for Window Sashes and Doors.—1,116, N. Proctor, Machines for the Manufacture of Bricks, &c.—1,474, J. Griffiths and others, Fittings for Gates and Heavy Doors.—8,448, J. Andrews, Screws, &c.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

NOVEMBER 20.—By *Worsfold & Hayward* (at Dover): 9, 10, and 45, Chapel-st., Dover, f., 410*l.*; "The Store" in Chapel-st., f., r. 10*l.*, 250*l.*; 1, Victoria-st., and 5, Oxford-cottages, Buckland, near Dover, f., 320*l.*; 150, London-rd., f., 190*l.*; 251, London-rd., f., 400*l.*; 8, Alexandra-cottages, Charlton, f., 180*l.*

NOVEMBER 24.—By *Pleuret & Sons:* 1 and 2, Lismore-villas, Woodford, f., 690*l.*; "Roseville," Cleveland-rd., f., r. 32*l.*, 355*l.*; 19, Stayton-st., Chelsea, u.t. 18 yrs., g.r. 1*l.* 17*s.* 3*d.*, r. 20*l.* 16*s.*, 145*l.*; 25, Denyer-st., u.t. 36 yrs., g.r. 3*l.*, r. 29*l.* 18*s.*, 270. By *Foster & Cranfield:* 25, Cannon-st., and 22, Bread-st., City, f., area 991 ft., r. 512*l.*, 8,100*l.*

NOVEMBER 25.—By *Woods Snelling:* f.g.r. of 6*l.*, with reversion in 58 yrs., Maryland Point, 120*l.*; 18, Rhodes-well-rd., Stepney, f., r. 26*l.* p.a., 275*l.*; 287, Deptford Lower-rd., u.t. 32 yrs., g.r. 4*l.* 10*s.*, r. 30*l.*, 205*l.*; 31 and 33, Bush-rd., u.t. 24 yrs., g.r. 1*l.* 15*s.*, r. 44*l.* 4*s.*, 295*l.*—By *H. Mills:* 16, Cantley-avenue, Clapham, u.t. 95 yrs., g.r. 14*l.* 5*s.*, r. 65*l.*, 560*l.*—By *A. Chancellor:* "Grove Lodge," West Molesey, and 3a. 2r. 10p., f., 1,060*l.*—By *Harman Bros.:* 9, Herne-ter., Peckham, f., r. 20*l.*, 250*l.*; 200, Villiers-rd., and stabling, &c., Willesden, r. 50*l.*, f. 550*l.*; 11, Fountayne-rd., Stoke Newington, u.t. 86 yrs., g.r. 10*l.*, 550*l.*—By *A. Richards:* 1, 2, and 4 to 16, Baronet-rd., Tottenham, f., 3,600*l.*; f.g.r. of 191*l.*, u.t. 62 yrs., g.r. 88*l.* 7*s.* 6*d.*, Victoria-pk., 1,730*l.*; 99, Burdett-rd., Bow, u.t. 55 yrs., g.r. 5*l.* 5*s.*, r. 58*l.*, 725*l.*; 20, Cayley-st., Limehouse, c., r. 27*l.* 6*s.*, 270*l.*; 32 to 100, Wilmer-gardens, Kingsland, u.t. 19 yrs., g.r. 12*l.*, 730*l.*; 26 and 30, Sheep-lane, Hackney, u.t. 6 yrs., g.r. 3*l.* 3*s.*, r. 44*l.* 4*s.*, 71*l.*—By *Wilkinson, Son, & Welch:* 33, Dorset-gardens, Brighton, f., r. 40*l.*, 760*l.*; 10, Dorset-gardens, u.t. 10 yrs., g.r. 12*l.* 12*s.*, r. 70*l.*, 250*l.*; 6, St. George's-pl., f., 1,340*l.*; 23, Lower Rock-gardens, u.t. 26 yrs., g.r. 15*l.*, r. 80*l.*, 650*l.*; 10, Salisbury-rd., Hove, f., 1,905*l.*

NOVEMBER 26.—By *C. & H. White:* No. 226, Westminster Bridge-rd., f., r. 182*l.*, 2,160*l.*; 28, Glengall-rd., Old Kent-rd., u.t. 32 yrs., g.r. 5*l.*, 255*l.*; No. 252, Kennington-rd., Duchy of Cornwall lease, g.r. 2*l.*, r. 38*l.*, 140*l.*—By *Ball, Norris & Hadley:* 100, Disraeli-rd., Putney, u.t. 82 yrs., g.r. 4*l.*, r. 30*l.*, 295*l.*—By *R. Tidey & Son:* 74 to 80 (even), Calford-rd., De Beauvoir Town, u.t. 28 yrs., g.r. 15*l.* 14*s.*, r. 128*l.*, 895*l.*—By *H. Oughton:* 11, Church-rd., Battersea, f., r. 26*l.*, 305*l.*; 60, Leader-st. and "The Roebuck Tavern," Chelsea, u.t. 11 yrs., g.r. 8*l.* 8*s.*, r. 130*l.*, 780*l.*; 10 and 12, Leader-st., u.t. 18 yrs., g.r. 24*l.*, r. 90*l.*, 265*l.*; 115 and 116, Cheyne-walk, f., r. 64*l.*, 1,000*l.*; 1 to 5, Little Davis-pl., f., r. 114*l.* 8*s.*, 900*l.*

NOVEMBER 27.—By *Dyer, Son, & Hilton:* 83, High-rd., Lewisham, u.t. 62 yrs., g.r. 8*l.*, 340*l.*—By *E. Richards & Co.:* "Plevna" and "Beckville," Cavendish-rd., Clapham, f., r. 70*l.*, 800*l.*—By *Ellis & Son:* 7, Champion-pk., Denmark-hill, u.t. 38 yrs., g.r. 18*l.*, 1,000*l.*—By *Messrs. Willmott:* F.g.r. of 50*l.*, Kilburn, with reversion in 74 yrs., 1,180*l.*; 18, Bassien Pk.-rd., Shepherd's-bush, u.t. 75 yrs., g.r. 6*l.*, r. 26*l.*, 100*l.*—By *Moss & Jameson:* 9, Highgate-rise, Highgate, u.t. 21 yrs., no g.r., 600*l.*—By *C. C. & T. Moore:* 16 and 18, Aston-st., Limehouse, u.t. 36 yrs. g.r. 6*l.* 10*s.*, r. 56*l.*, 450*l.*

NOVEMBER 28.—By *W. W. Jenkinson:* A plot of land, Roscoe-st., Golden-lane, E.C., area 1,213 ft., f., 760*l.*—By *Wood & Kirby:* l g.r. of 33*l.* 10*s.*, u.t. 71 yrs., York-pl., Wapping, 500*l.*; a plot of freehold land, Garfield-rd., Wimbledon, 30*l.*

[*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.	£.	s.	d.	£.	s.	d.
Greenheart, B.G. ....ton	6	15	0	7	5	0
Teak, E.I. ....load	10	0	0	13	0	0
Sequoia, U.S. ....foot cube	0	2	3	0	2	6
Ash, Canada ....load	2	10	0	4	5	0
Birch ,, ...	2	5	0	4	5	0
Elm ,, ...	3	10	0	4	15	0
Fir, Dantzic, &c.	2	0	0	2	15	0
Oak ,, ...	2	10	0	4	10	0
Canada	4	17	6	6	10	0
Pine, Canada red	2	10	0	3	10	0
,, yellow	2	0	0	5	10	0
Lath, Dantzic ....fathom	5	0	0	6	0	0
St. Petersburg	6	0	0	7	0	0
Deals, Finland, 2nd & 1st. std. 100	7	10	0	10	0	0
,, ,, 4th and 3rd	7	0	0	7	5	0
Riga	6	0	0	8	0	0
St. Petersburg, 1st yellow	9	10	0	14	10	0
,, 2nd ,, ...	7	10	0	9	0	0
,, white	7	0	0	10	0	0
Swedish	7	0	0	15	10	0
White Sea	8	0	0	17	0	0
Canada, Pine, 1st	13	0	0	24	0	0
,, ,, 2nd	9	0	0	16	0	0
,, ,, 3rd, &c.	7	0	0	10	0	0
,, Spruce, 1st	8	10	0	10	10	0
,, ,, 3rd and 2nd ..	6	10	0	8	0	0
New Brunswick, &c.	5	10	0	7	10	0
Battens, all kinds	4	10	0	15	10	0
Flooring Boards, sq., 1 in., prepared, First	0	10	0	0	14	0
Second	0	8	0	0	10	6
Other qualities	0	5	6	0	7	9
Cedar, Cuba ....foot	0	0	4	0	0	5
Honduras, &c.	0	0	3½	0	0	4½

TIMBER *(continued).*	£.	s.	d.	£.	s.	d.
Mahogany, Cuba	0	0	4½	0	0	6½
St. Domingo, cargo average ..	0	0	4½	0	0	6½
Mexican ,, ...	0	0	4½	0	0	5½
Tobasco ,, ...	0	0	5½	0	0	6½
Honduras ,, ...	0	0	5½	0	0	6½
Box, Turkey ....ton	4	0	0	12	0	0
Rose, Rio	12	0	0	19	0	0
Bahia	10	0	0	18	0	0
Satin, St. Domingo....foot	0	0	9	0	1	3
Porto Rico	0	0	10	0	1	6
Walnut, Italian	0	0	4	0	0	7
METALS.						
IRON—Bar, Welsh, in London tn	6	10	0	6	17	6
,, ,, at works in Wales	6	0	0	6	10	0
,, Staffordshire, in London..	7	0	0	8	0	0
COPPER—British, cake and ingot	61	0	0	61	10	0
Best selected	62	10	0	63	10	0
Sheets, strong	69	0	0	0	0	0
Chili, bars	55	10	0	0	0	0
YELLOW METAL....lb.	0	0	6½	0	0	6½
LEAD—Pig, Spanish ....ton	13	5	0	0	0	0
English, com. brands	13	10	0	0	0	0
Sheet, English, 3 lbs. per square foot and upwards....	16	0	0	0	0	0
Pipe	16	10	0	0	0	0
ZINC—English sheet ....ton	29	0	0	29	10	0
TIN—Straits	92	0	0	0	0	0
Australian	92	10	0	0	0	0
English Ingots	0	0	0	0	0	0
OILS.						
Linseed ....ton	21	15	0	22	2	6
Cocoanut, Cochin	33	10	0	34	0	0
,, Ceylon	31	10	0	0	0	0
Palm, Lagos	26	10	0	0	0	0
Rapeseed, English pale	28	5	0	0	0	0
,, brown	26	15	0	0	0	0
Cottonseed, refined	19	0	0	0	0	0
Tallow and Oleine	21	0	0	40	0	0
Lubricating, U.S.	5	0	0	6	0	0
,, refined	7	10	0	12	0	0
TAR—Stockholm....barrel	1	0	0	1	1	0
Archangel	0	13	6	0	14	0

TENDERS.

[Communications for insertion under this heading must reach us *not later than* 12 *noon on Thursdays.*]

ASHFORD (Middlesex).—For proposed coal office and dwelling-house, at Ashford, Middlesex. Mr. Ralph Fitt, architect. Quantities supplied:—

G. Reavell	£434	Robinson & Francis	£392
H. Gosling & Sons	370		

DARTFORD.—For constructing roads and sewers (second portion) on the Westgate Estates, for the Kent and Essex Land, &c., Company, Limited. Mr. Geo. R. Cobham, F.S.I., surveyor, 49, Windmill-street, Gravesend:—

Multon & Wallis	£1,398	A. T. Catley, Lloyd-square,	
W. H. Wheeler	1,340	E.C.*	£1,270
Rackham & Bentham	1,274	* Accepted.	

FINCHLEY.—For proposed residence, with stablings, &c., for Mr. R. Wallis, High Barnet-road, N. Messrs. Geo. Carter & Son, architects, Holloway-road:—

Hill	£1,659 10 0	Smith	£1,605 0 0
Boyce	1,642 10 0	Blackhall	1,599 19 6
Holmes	1,629 10 0	F. Willis, Leyton-	
Stapleford & Son	1,615 0 0	stone, N. (accepted)	1,547 10 0

GATESHEAD.—For the erection of a boys' school at the Lady Vernon Schools, Bensham, Gateshead-on-Tyne. Mr. Stephen Piper, architect, County Chambers, Newcastle. Quantities by Mr. J. Savage, Grey-street, Newcastle:—

R. & R. Reed	£2,710 1 4
H. Brown & Co.	2,284 10 0
Tyrie & Graham, Gateshead (accepted)	2,231 14 0
T. & R. Lamb	2,104 13 8
Alterations to Existing School.	
H. Brown & Co.	£231 0 0
William Thompson	185 0 0
T. & R. Lamb	176 4 1
Tyrie & Graham, Gateshead (accepted)	172 5 0
R. & R. Reed	168 0 0

GODALMING.—For forming and pitching roadway, &c., at Godalming, for the Borough of Godalming. Mr. S. Weaman, Borough Surveyor, Godalming:—

F. Milton	£275 0 0	J. Othen	£198 10 0
J. Humphreys	240 0 0	W. H. Wheeler, Godal-	
B. Booth	202 15 0	ming (accepted)	189 2 6

HORFIELD.—For the reconstruction of Brynland-avenue, Horfield, Gloucestershire, for the Local Board. Mr. A. P. I. Cotterell, engineer, Lonsdale-chambers, Baldwin-street, Bristol:—

J. Parkins	£1,398	W. Bryant	£1,094
F. Scutt	1,125	W. Mereweather, Bristol	
S. Turner	1,080	(accepted)	975

LEEDS.—For water-pipes from Whingate, Armley, to Bramley and New Farnley, for the Leeds Corporation. Mr. Thomas Hewson, M.Inst.C.E., Borough Engineer, Municipal-buildings, Leeds:—

Stanton Iron Works Company, Nottingham	£2,017 18 0

LONDON.—For executing certain drainage works at Lambeth Infirmary, for the Lambeth Guardians. Mr. T. W. Aldwinckle, architect, 2, East India-avenue, Leadenhall-street, London, E.C. Quantities supplied:—

Cooper & Squires	£1,920	W. Johnson	£1,670
Kidlington	1,900	J. G. B. Marshall	1,549
Peacock Bros.	1,898	M. Marsland	1,497
J. Mills	1,845	R. Mayo, Brixton*	1,350
Turtle & Appleton	1,730	* Accepted.	

LONDON.—For alterations at "The Three Nuns" Hotel, High-street, Aldgate. Mr. R. A. Lewcock, architect, 98, Bishopsgate-street Within:—

Voller	£1,470	Hood	£983
Goodall	1,063	Courtney & Fairbairn	£960
Todd	1,009	Higgs (accepted)	923
Spencer & Co.	999		
Gas Fittings.			
Dix (accepted)			£202

LONDON.—For alterations at "The Albion" beer-house, Albert-road, North Woolwich, for Mr. Strudwick. Mr. Edward Bowen, architect, 1, Prince's-street, Spitalfields, E.:—

S. Goodall	£516	J. A. Taylor	£349
Mower & Son	387	S. W. Hawkings (accepted)	445

LONDON.—For the conversion of No. 130, Stroud-green-road into shop for Mr. W. Swan. Messrs. Geo. Carter & Son, architects:—

Brett	£416 0 0
S. Smith, 189, Balls Pond-road (accepted)	290 0 0

LONDON.—For extension of saloon bar, &c., at the "Hanley Arms" public-house, Hornsey-rise, for Mr. T. Leadbetter. Messrs. G. Carter & Son, architects:—

W. Lavender, Mornten-street, Hornsey-road*	£435 0 0
* Accepted.	

LONDON.—For building pavilion, Tufnel Park Cricket Ground. Mr. R. A. Lewcock, 98, Bishopsgate-street Within, and Mr. C. W. Calliott, joint architects :—
J. E. Todd (accepted) £1,490 0 0

LONDON.—For works at the "Weaver's Arms," Stamford-hill. Mr. R. A. Lewcock, architect, 98, Bishopsgate-street Within :—
T. Heath, *Pewtering* (accepted) £109 0 0
Winn, *Gas Fitting* (accepted) 60 0 0

LONDON.—For pulling down and rebuilding "The Portland Arms" tavern, 60, High-street, St. John's Wood. Mr. R. A. Lewcock, architect, 98, Bishopsgate-street Within. Quantities by Mr. A. E. Brede :—

Spencer & Co	£6,240	Goodall	£5,807
Toms	5,967	Gould & Brand	5,793
Voller	5,926	Todd*	5,718
Anley	5,828	* Accepted.	

LONDON.—For building stabling in Howard-road, South Hornsey. Mr. R. A. Lewcock, architect, 98, Bishopsgate-street Within :—

Hagworth & Sons	£427	Thompson*	£330
Goodall	359	* Accepted.	

LONDON.—For road-making and paving works, in King's-road and St. Andrew's-road, Fulham, for the Fulham Vestry. Mr. W. Sykes, New Streets Surveyor, Town-hall, Walham-green :—

King's-road, Section No. 2.

Greenham, Hammersmith	£156 0 0
Bell, Tottenham	139 0 0
Tomes & Wimpey, Hammersmith	135 0 0
Nowell & Robson, Kensington	128 0 0
Killingback, Camden-town	123 0 0

St. Andrew's-road.

Nowell & Robson, Kensington	£449 0 0
Greenham, Hammersmith	445 0 0
Killingback, Camden-town	415 0 0
Tomes & Wimpey, Hammersmith	401 0 0
Bell, Tottenham	293 0 0

LONDON.—For bringing out shop-front and for various alterations at 144, Stroud-green-road. Messrs. Carter & Son, surveyors :—
E. Houghton & Son, Stroud-green (accepted) £294 0 0

LONDON.—For bringing out two shop fronts and for alterations at 146 and 148, Stroud-green-road, for Mr. Jas. E. Bedingham :—
E. Houghton & Son, Stroud-green (accepted) £374 0 0

LONDON.—For alterations at "The Aberfeldy" Tavern, 357, East India Dock-road. Mr. R. A. Lewcock, architect, 98, Bishopsgate-street Within :—

Spencer & Co.	£845	Salt	£748
Courtney & Fairbairn	795	Goodall	698
Reed	708	Walker Bros.	646
Todd	767	Hood (accepted)	565

Heath, *Pewtering* (accepted) £247 0 0
Steadman, *Gas Fitting* (accepted) 100 0 0

LONDON.—For stabling at New House, Streatham, S.W. Messrs. F. C. Notley & Herbert Riches, joint architects, 59 & 60, Cornhill, London, E.C :—
Coulsell Bros. (accepted) £507 0 0

LONDON.—For alterations at the "Effra Hall" Tavern, Kellett-road, Brixton. Mr. R. A. Lewcock, architect, 98, Bishopsgate-street Within :—

Spencer & Co.	£246	Courtney & Fairbairn	£227
Williams	239	Whitehead (accepted)	205

LONDON.—For erecting two cottages in Malt-street, Old Kent-road, for Mr. Edwin Venner. Mr. Henry Goodwin, surveyor, 403, Old Kent-road, S.E. :—
C. Pennack (no competition) £460 0 0

LONDON.—For alterations and additions to 149a, Sloane-street Chelsea, S.W. Mr. J. Emes, architect, 151, Ebury-street, S.W. :—
Simmonds Bros., Chelsea (accepted) £1,020 0 0

MULLINGAR (Ireland).—For the electric-light installation at the Mullingar District Lunatic Asylum, County Westmeath. Plans and specifications prepared by Mr. W. Kaye Parry, C.E., 35, Dame-street, Dublin :—

	Contract No. 1.	Contract No. 2.	Total.
Soems Bros. & Co.	£2,997	£716	£3,713
Latimer, Clark, Muirhead, & Co.	2,512	555	3,067
Rashleigh Phipps & Dawson	2,435	629	3,064
Crompton, Lim.	2,310	—	—
Edmondson	2,280	525	2,805
W. T. Goolden & Co.	2,271	633	2,904
Drake & Gorham	2,261	—	—
The Gulcher Electric Light Co., Limited	2,045	—	—
J. E. H. Gordon	1,890	—	—
Fowler, Lancaster, & Co., Lim.	1,855	545	2,400
Mather & Platt	1,820	490	2,310
B. Verity & Sons	1,769	490	2,259
Sharp & Kent	1,692	585	2,277
Electric Engineering Co. of Ireland	1,677	413	2,090
Edison, Swan, & Co., Lim.	1,685	550	2,205
J. D. F. Andrews & Co.	1,395	555	1,950
Woodhouse & Rawson, United and Limited	1,357	433	1,790
Alliance Engineering Works	1,310	445	1,755

RYDE (I. of W.).—For constructing a reservoir on Ashey Down, for the Town Council. Mr. Francis Newman, Borough Engineer, Town-hall, Ryde :—

Edwin James	£3,055 12 6	Hiram Jenkins, Ryde*	2,567 8 3
William Newman	2,969 0 0		
George Hughes	2,810 0 0	* Accepted.	

SOUTH NORWOOD.—For pulling down shop and rebuilding same, for Mr. Walkley :—

W. Thoumont	£600	W. Francis & Co., East Dulwich	£576
Crome & Co.	583		

STAINES.—For erecting proposed Drill-hall at Staines. Mr. T. Williams, architect, Staines. No quantities :—

Shore & Lummis	£1,789 12 6	G. Reavell	£1,493 6 0
Andes Bros.	1,544 0 0	Simpson & Co.	1,490 0 0
Allison	1,515 0 0	G. Gray	1,445 0 0

WEDNESFIELD.—For new foundry and offices at Wednesfield, near Wolverhampton, for Messrs. Vaughan & Pedley. Mr. Benj. Baker, architect, Willenhall :—

Bradney & Co.	£3,795 0 0	John Guest & Son, Brettle-lane*	£3,615 15 0
Thos. Tildesley	3,747 0 0		
		* Accepted.	

WISBECH.—For the erection of the "Woolpack" Inn, for Mr. Thomas Stones. Mr. C. F. Langford, architect, Bridge Buildings, Wisbech :—
Solden Hipwell, Wisbech (accepted) £347 0 0

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